

COPY #1
**PASSAIC VALLEY SEWERAGE COMMISSIONERS
NEWARK, NEW JERSEY**

REPORT UPON

**INVESTIGATION OF
ORGANIC PRIORITY POLLUTANTS
IN THE INFLUENT TO THE
PASSAIC VALLEY SEWERAGE COMMISSIONERS
TREATMENT PLANT**

MAY, 1986

**CFM Incorporated
Environmental Engineering Services
Whippany, New Jersey**



KLLC03700

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KLL003781

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TREATMENT PLANT

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REPORT UPON
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TREATMENT PLANT

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I. INTRODUCTION

An investigation was undertaken to determine the presence of organic priority pollutants in the influent to the Passaic Valley Sewerage Commissioners (PVSC) Treatment Plant located in Newark, New Jersey. The investigation was initiated in November, 1984 and completed in January, 1986 and included the sampling of the influent to the Commissioner's treatment plant over a fourteen month period. The investigation further included the sampling of sewage flow in the principal trunk sewer and two main interceptors tributary to the Commissioner's plant. The sampling of the tributary trunk sewer and interceptors was for a shorter period and varied depending upon the location. A description of the specific sampling locations and the methodologies utilized to obtain representative samples is discussed in other sections of this report.

All samples obtained were returned to the laboratory for analysis to determine the concentration of organic priority pollutants. The results of the laboratory analyses were related to the sewage flow occurring at the time of sampling and a determination made of the loading (as pounds per day). The results of this evaluation are summarized in this report including graphical representations. The intention of the study was to determine if organic priority pollutants occur within the influent

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to the Commissioner's treatment plant in any statistically relevant amounts or frequency. The results of the investigations are evaluated and summarized including copies of laboratory analysis reports as a separate Appendix volume.

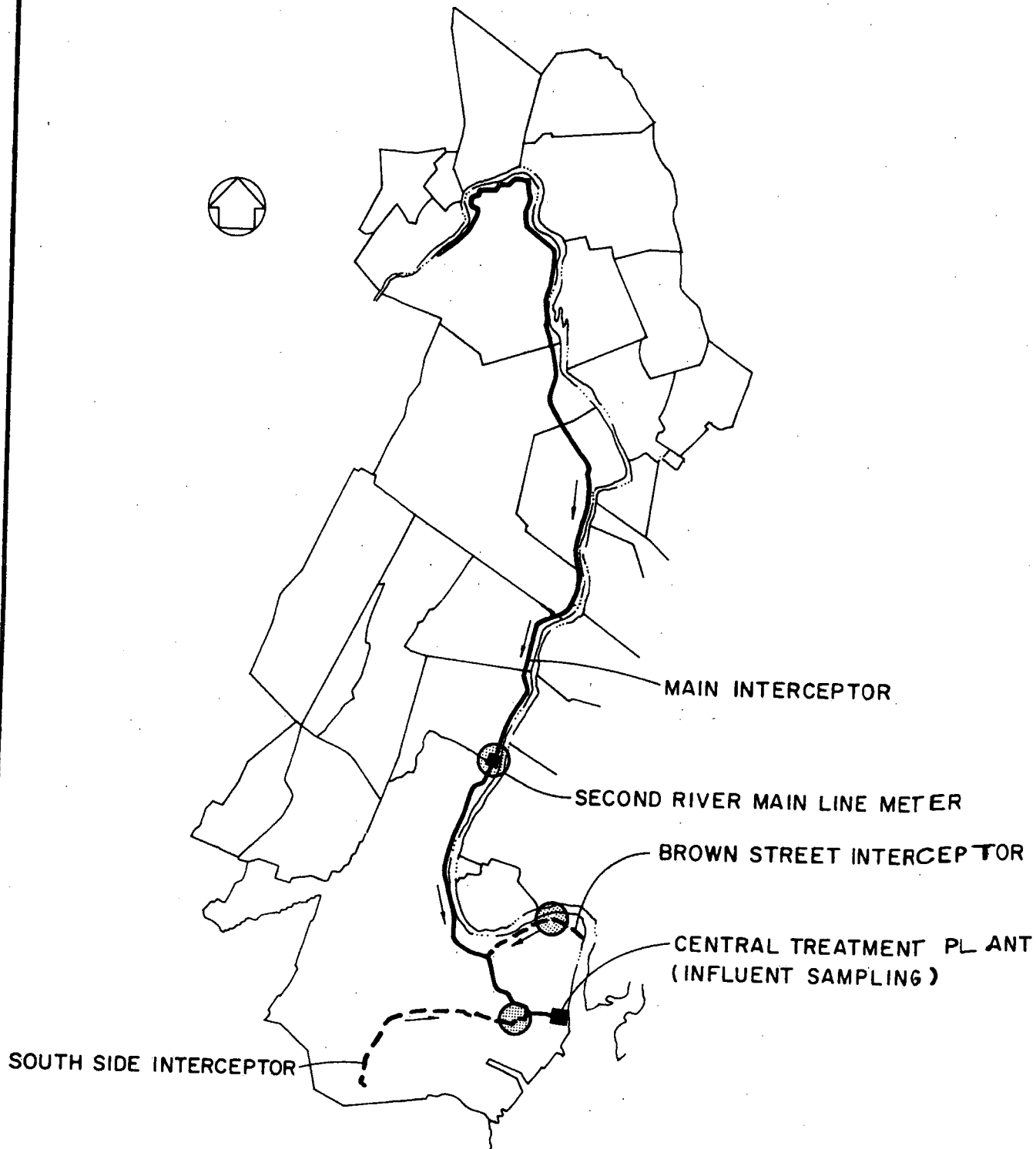
II. SAMPLING PROCEDURES

Sampling of the influent to the Commissioners' treatment plant, as well as key locations in the trunk and interceptor sewers tributary to the plant, was accomplished in accordance with USEPA Guidelines for the sampling of waste streams for organic priority pollutants. The individual sampling techniques and equipment utilized at each sampling location are discussed hereafter, as well as the procedures utilized to obtain representative samples, preservation of the samples and transportation of the samples.

Four locations were selected for sampling at various times during the investigation. The general relationship of each sampling location to the Commissioners treatment plant and trunk sewer system are shown on Plate "A". The sampling locations are shown on plates "B, C and D" for each of the following:

SAMPLING LOCATION

1. The influent trunk sewer at the Commissioner's treatment plant in Newark, including all flow to the plant.
2. The main trunk sewer at the convergence chamber located in Belleville just downstream of the Second River main line meter, including about 50 percent of the flow to the plant.

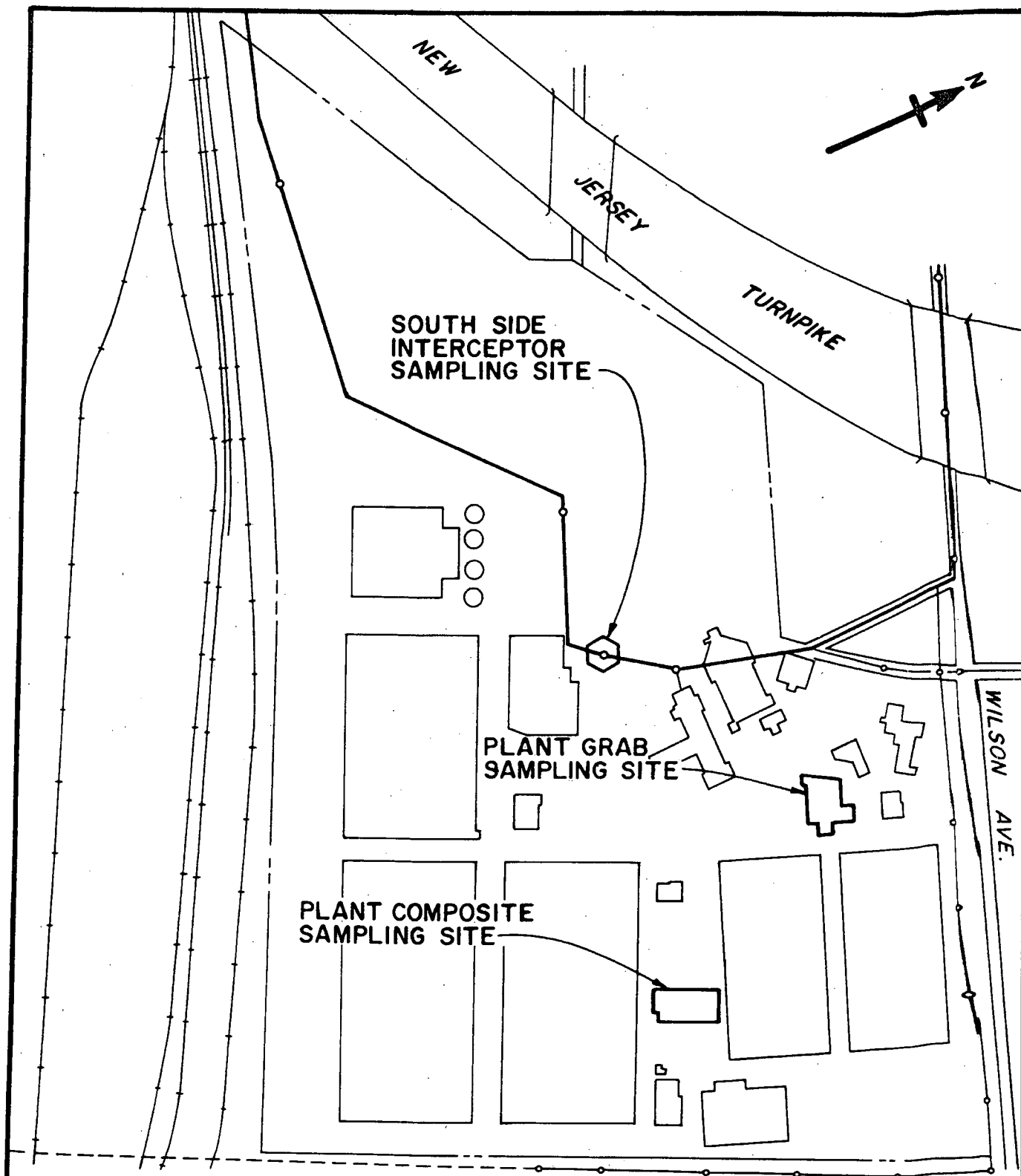


SAMPLING LOCATIONS

PASSAIC VALLEY SEWERAGE COMMISSION'S
NEWARK, NEW JERSEY
ORGANIC PRIORITY POLLUTANT INVESTIGATION
SAMPLING LOCATION MAP

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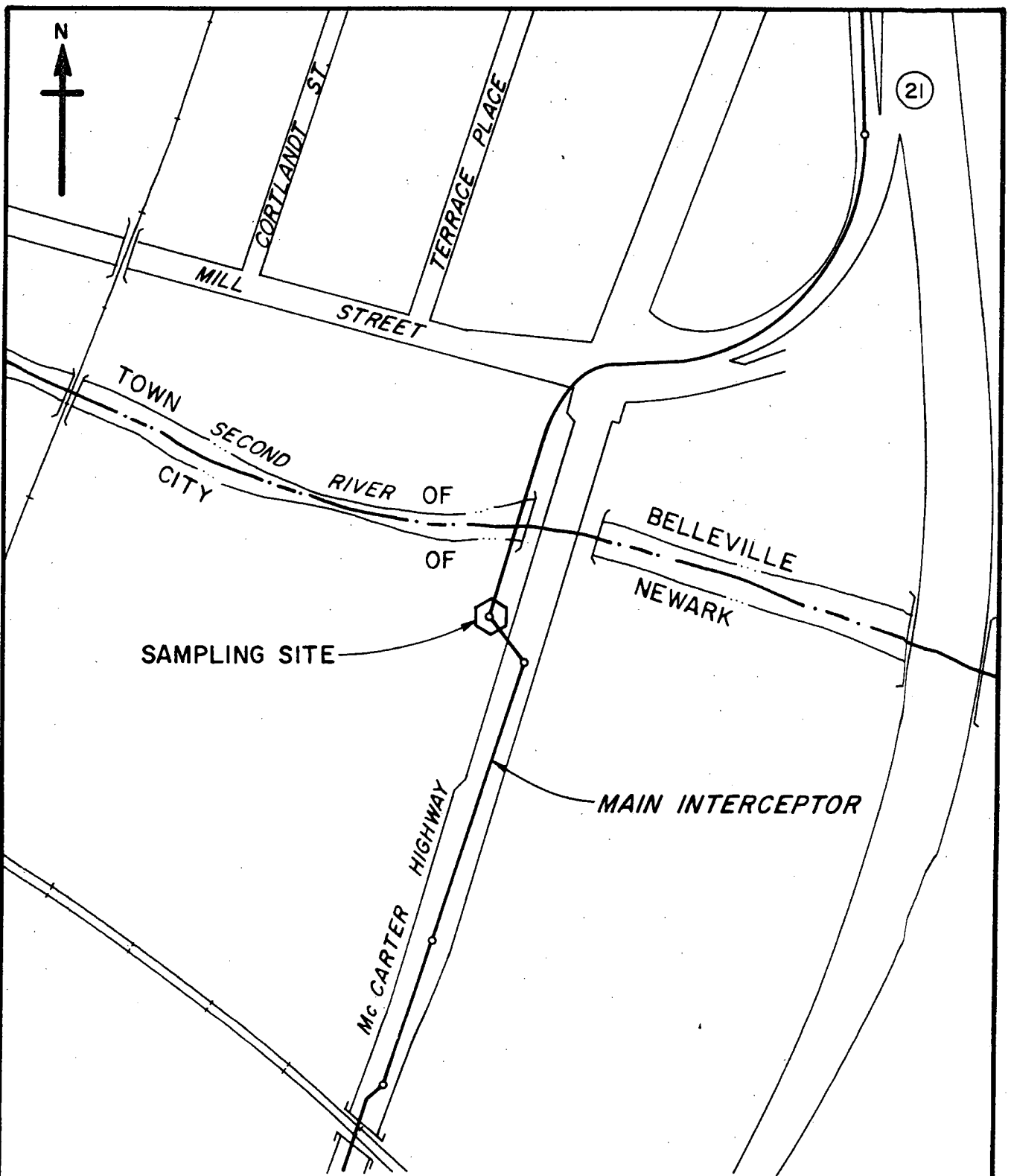
KLLC03788 PLATE A



PASSAIC VALLEY SEWERAGE COMMISSIONERS
NEWARK, NEW JERSEY
ORGANIC PRIORITY POLLUTANT INVESTIGATION
SAMPLING LOCATION PLAN
LOCATION NO. 1 - TREATMENT PLANT INFLUENT
LOCATION NO. 3 - SOUTH SIDE INTERCEPTOR

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NOT TO SCALE

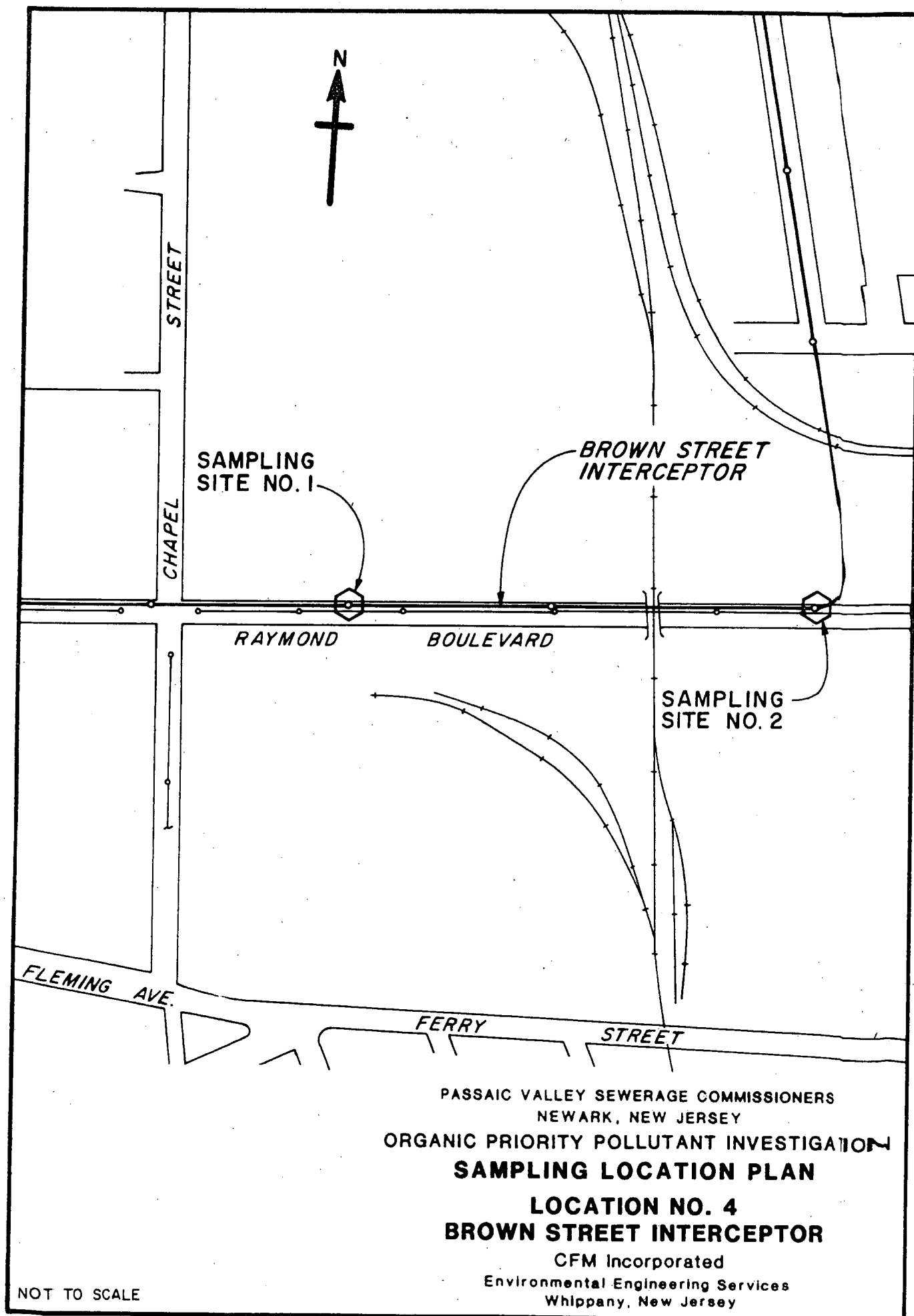


PASSAIC VALLEY SEWERAGE COMMISSION
NEWARK, NEW JERSEY
ORGANIC PRIORITY POLLUTANT INVESTIGATION
SAMPLING LOCATION PLAN
LOCATION NO. 2
SECOND RIVER CONVERGENCE CHAMBER

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NOT TO SCALE

KLL003790 PLATE C



3. The South Side interceptor sewer at its connection to the main trunk sewer at the Commissioner's treatment plant in Newark, including about 12 percent of the flow to the plant.
4. The Brown Street interceptor sewer located in Newark, including less than 1 percent of the flow to the plant, but from a heavily industrialized area.

Sampling of each location occurred at various times during the investigation and in such a manner as to evaluate if a trend of organic priority pollutant concentrations in the waste streams exist. The sampling of all sites occurred concurrently such that representative samples were obtained at upstream locations (No. 2, 3, and 4) at adjusted times to reflect sewage flow to the treatment plant. All adjustments were predetermined to reflect estimated average sewage flow. The project description required that a minimum of twelve 24-hour composite samples be obtained on weekdays during each month of the investigation at each sampling site. Additionally the project required three 24-hour composite samples to be obtained per month on weekends, for a total of fifteen samples per month. The project description further required that no more than five samples be obtained during any consecutive seven day period nor that samples be retrieved on days of (and the day after) rainfall events that exceed one-inch of rainfall at Newark Airport.

In order to meet these requirements a master schedule was developed and adjusted periodically during the investigation based upon actual rainfall as it occurred. For the most part it was possible to obtain samples on the days indicated by the master schedule with minor adjustments for significant rainfalls. In all months of the investigation (with the exception of November, 1985) the full fifteen samples were obtained at the locations being sampled. During the month of November 1985 a combination of excessive rainfalls and holidays prevented the full 15 samples from being obtained. The schedule was adjusted and additional samples obtained in December 1985 and January 1986 to account for the November deficit. The frequency of sampling at each location was as follows:

LOCATION 1 - The Influent to the Commissioner's Treatment Plant

Sampling of the influent sewer to the treatment plant was initiated during mid November, 1984 and progressed continuously through mid January, 1986 for a period of about fourteen months. The sampling effort obtained at least fifteen samples of the influent to the treatment plant over each monthly period, (in accordance with the project description) for a total of 217 samples. This sampling location produced the largest data base.

LOCATION 2 - Second River Meter Chamber

This sampling location was along the main trunk sewer tributary to the treatment plant and was selected to identify the loading of organic priority pollutants tributary from the

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industrial areas upstream of the City of Newark. The location of sampling was just downstream of the metering facilities and was initiated during July, 1985 and maintained continuously through the completion of the project in January, 1986, for a total of 96 samples. The adjustment in sampling at this location required initiation of sampling approximately 2 hours before Location 1, (the main treatment plant site) to account for average sewage flow.

LOCATION 3 - South Side Interceptor

The South Side Interceptor provides service to a large section of the City of Newark including significant industrial areas. Sampling of the interceptor was intended to identify the loading of organic priority pollutants tributary from the Southwest area of the City of Newark. This sampling effort was undertaken in a manhole just upstream of the connection to the main trunk sewer and was initiated during October, 1985 and maintained through the completion of the project in January, 1986 for a total of 45 samples. The adjustment in sampling at this location required initiation of sampling approximately 15 minutes before Location 1, the main treatment plant site.

LOCATION 4 - Brown Street Interceptor

The sampling of this interceptor occurred at two locations along the Brown Street Interceptor downstream of all significant industrial connections from the Southeast industrial area of the City of Newark. The two sampling locations were necessitated by construction activity underway in the interceptor

sewer during the investigation. Sampling of the interceptor was initiated during October, 1985 and maintained through the completion of the project in January, 1986 for a total of 45 samples. The adjustment in sampling at this location required initiation of sampling approximately 45 minutes before Location 1, the main treatment plant location.

The total number of samples obtained, including all four sites was 403. All samples were obtained as 24-hour composite samples utilizing specially designed toxic sampling equipment. Grab sampling was utilized to obtain representative samples for analysis of volatile fraction compounds. The 24-hour composite sampling equipment was manufactured by the Manning Technologies Corporation and included an S-5000T composite refrigerated toxic sampler for Location 1. This unit was located in the sampling room of the Commissioner's treatment plant. Samples of the waste were obtained from adjacent sampling troughs where pumps obtained a representative continuous flow from the main trunk sewer following the headworks and main pumping station. Volatile fraction grab sampling was accomplished in the trunk sewer following the headworks but prior to the main pumping station.

At the three remaining locations sampling was undertaken utilizing Manning Technologies Corporation portable S-4040 T toxic samplers to obtain 24-hour composite samples. Volatile fraction compound sampling was undertaken by obtaining grab samples at each location. All grab sampling was accomplished utilizing a stainless

steel Bomb Sampler and occurred at various times, on sampling days during the project to account for loading variability.

Additionally, a full 24-hour effort was made to determine the actual variability of Volatile compounds in the plant influent. For this effort a total of 12 grab samples were obtained (one every two hours over 24 hours) and analyzed for all compounds in the volatile fraction. The results of this effort showed much variability and is discussed in greater detail in a separate section of this report.

The composite samplers included twenty-four discrete glass sample containers, as well as a vacuum pump sampling mechanism that utilized teflon coated or glass materials. The samplers obtained twenty-four discrete samples over a typical 24-hour period with sampling frequency initiated every thirty minutes, including two representative discrete samples obtained every hour. The discrete samples obtained were composited into a single representative sample and transported to the laboratory for analysis. The sampler at the Commissioner's treatment plant included a refrigerated sample compartment, which maintained samples at 4 C. The temporary sampling equipment was suspended within the manholes and maintained samples at ambient background temperatures. All samples obtained following compositing were returned in insulated iced containers to the laboratory for analysis.

III. LABORATORY ANALYSIS

All samples obtained during the investigation were returned to the laboratory for subsequent analysis. Laboratory analysis for the project was performed jointly by AEL Laboratories and by CFM Incorporated Organic Laboratory. The analysis procedures utilized generally conform to United States Environmental Protection Agency (USEPA) 600 Series Methods for Gas Chromatography. The analysis was performed utilizing several makes of Gas Chromatographs including a Varian Model 3400, a Perkin-Elmer Sigma 300 and a Hewlett Packard Model 5830. Several of the GC's were combined with Tekmar LSC-2 Liquid sample concentrator/purge and trap. Extraction procedures were in accordance with USEPA Methodology utilizing liquid/liquid extraction methods. A copy of the Quality Assurance/Quality Control procedures utilized by CFM Organic laboratory in the analysis of organic compounds is included in Appendix "A" of this report.

Table "1" identifies the organic compounds that were analyzed as part of this investigation, including the detection limits that were observed based upon the USEPA Methodologies performed.

IV. RESULTS OF ANALYSIS

The results of all laboratory analyses performed on samples obtained during this investigation for the treatment plant influent are included in Appendix "B" of this report. The individual

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TABLE 1

PASSAIC VALLEY SEWERAGE COMMISSIONERS
SUMMARY OF LABORATORY ANALYSIS
ORGANIC PRIORITY POLLUTANT INVESTIGATION
LIST OF ORGANIC COMPOUNDS ANALYZED

	detection limit (ug/l)		detection limit (ug/l)
VOLATILE ORGANICS		BASE NEUTRALS	
Acrolein	1.0	Acenaphthene	10.0
Acrylonitrile	1.0	Acenaphthylene	10.0
Benzene	1.0	Anthracene	10.0
Bis (Chloromethyl) Ether	1.0	Benzidine	44.0
Bromoform	1.0	Benzo (a) Anthracene	10.0
Carbon Tetrachloride	1.0	Benzo (a) Pyrene	10.0
Chlorobenzene	1.0	3,4-Benzofluoranthene	10.0
Chlorodibromomethane	1.0	Benzo (g,h,i) Perylene	10.0
Chloroethane	1.0	Benzo (k) Fluoranthene	10.0
2-Chloroethylvinyl Ether	1.0	Bis(2-Chloroethoxy)Methane	10.0
Chloroform	1.0	Bis (2-Chloroethyl) Ether	10.0
Dichlorobromomethane	1.0	Bis(2-Chloroisopropyl)Ether	10.0
Dichlorodifluoromethane	2.0	Bis(2-Ethylhexyl)Phthalate	10.0
1,1-Dichloroethane	1.0	4-Bromophenyl Phenyl Ether	10.0
1,2-Dichloroethane	1.0	Butylbenzyl Phthalate	10.0
1,1-Dichloroethylene	1.0	2-Chloronaphthalene	10.0
1,2-Dichloropropane	1.0	4-Chlorophenyl Phenyl Ether	10.0
1,3-Dichloropropylene	1.0	Chrysene	10.0
Ethylbenzene	1.0	Dibenzo (a,h) Anthracene	10.0
Methyl Bromide	2.0	1,2-Dichlorobenzene	1.0
Methyl Chloride	1.0	1,3-Dichlorobenzene	1.0
Methylene Chloride	1.0	1,4-Dichlorobenzene	1.0
1,1,2,2-Tetrachloroethane	1.0	3,3'-Dichlorobenzidine	16.5
Tetrachloroethylene	1.0	Diethyl Phthalate	10.0
Toluene	1.0	Dimethyl Phthalate	10.0
1,2-Trans-Dichloroethylene	1.0	Di-N-Butyl Phthalate	10.0
1,1,1-Trichloroethane	1.0	2,4-Dinitrotoluene	10.0
1,1,2-Trichloroethane	1.0	2,6-Dinitrotoluene	10.0
Trichloroethylene	1.0	Di-N-Octyl Phthalate	10.0
Trichlorofluoromethane	1.0	1,2-Diphenylhydrazine	10.0
Vinyl Chloride	1.0	Fluoranthene	10.0
ACID COMPOUNDS		Fluorene	10.0
Chlorophenol	10.0	Hexachlorobenzene	10.0
2,4-Dichlorophenol	10.0	Hexachlorobutadiene	10.0
2,4-Dimethylphenol	10.0	Hexachlorocyclopentadiene	1.0
4,6-Dinitro-O-Cresol	10.0	Hexachloroethane	10.0
2,4-Dinitrophenol	10.0	Indeno (1,2,3-cd) Pyrene	10.0
2-Nitrophenol	10.0	Isophorone	10.0
4-Nitrophenol	10.0	Naphthalene	10.0
P-Chloro-M-Cresol	10.0	Nitrobenzene	10.0
Pentachlorophenol	10.0	N-Nitrosodimethylamine	10.0
Phenol	10.0	N-Nitrosodi-N-Propylamine	10.0
2,4,6-Trichlorophenol	10.0	N-Nitrosodiphenylamine	10.0
PESTICIDES		Phenanthrene	10.0
Alpha-BHC	0.01	Pyrene	10.0
Beta-BHC	0.01	1,2,4-Trichlorobenzene	10.0
Delta-BHC	0.01		
Alpha-Endosulfan	0.01		
Beta-Endosulfan	0.01		
Endosulfan Sulfate	0.01		
Endrin Aldehyde	0.01		

reports identify the concentration of all organic compounds that were detected above the methodology detection limits as well as all non-detected compounds. This information has been evaluated on the basis of sewage flow occurring during the time of sampling in order to arrive at a loading of each organic compound (in terms of pounds per day) at each sampling location. Appendix "C" (Location 2 - Second River sampling site), Appendix "D" (Location 3 - Southside Interceptor), and Appendix "E" (Location 4 - Brown Street Interceptor) have also been included for the individual reports and are arranged in the same manner as the treatment plant influent reports.

Summary Tables for the Treatment Plant Influent have been prepared for each week of the investigation and are included in Appendix "F" of this report. The Tables identify sewage flow occurring to the treatment plant on each day of sampling as well as the concentration (in micrograms per liter) of each compound detected and the associated loading in terms of pounds per day. Additionally, the weekly average loading is shown utilizing only those days when each compound was detected and the total pounds per week for each compound, again utilizing only those days when compounds were detected.

The results of the analysis are shown by methodology utilized as either Volatile Organic Compounds, Acid Extractable Compounds, Base Neutral Extractable Compounds or Pesticides. Similar Summary Tables have been prepared for the additional three sampling

locations and are included in the following Appendixes: Appendix "G" (Location 2 -Second River Sampling Site); Appendix "H" (Location 3 -Southside Interceptor); and Appendix "I" (Location 4 - Brown Street Interceptor). These Summary Tables are arranged in the same manner as the Treatment Plant Influent Summary Tables.

V. EVALUATION OF ORGANIC LOADINGS

All information obtained in this investigation was evaluated to establish if any significant trends exist in the loading of organic priority pollutants to the Commissioners Treatment Plant or at the additional sampling locations within the collection system tributary to the plant. Table "2" has been prepared to show all organic compounds for which analysis was performed for the influent to the Commissioners Treatment Plant. The Table summarizes the number of samples and percent of total samples of all detected compounds as well as the average daily loading in pounds per day and the minimum and maximum daily loadings (in pounds per day) of all detected compounds. Table "3" (Second River Sampling Site), Table "4" (Southside Interceptor) and Table "5" (Brown Street Interceptor) have been prepared for the additional three sampling locations. The Tables are arranged in the same manner as the Treatment Plant Influent Table.

A direct comparison, by the summation of the average loadings at Locations 2, 3, and 4, with the average loading at the treatment plant does not seem feasible. The reasons for this are not clear,

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TABLE 2

PASSAIC VALLEY SEWERAGE COMMISSIONERS
SUMMARY OF LABORATORY ANALYSIS
ORGANIC PRIORITY POLLUTANT INVESTIGATION
TREATMENT PLANT INFLUENT
(NOVEMBER 1984 - JANUARY 1986)

	--DETECTED NUMBER OF SAMPLES	COMPOUNDS-- PERCENT OF TOTAL SAMPLES	AVERAGE DAILY LOADING (lbs./day)	MINIMUM DAILY LOADING (lbs./day)	MAXIMUM DAILY LOADING (lbs./day)
VOLATILE ORGANICS					
Acrolein	23	10.6	6.2	1.6	41.1
Acrylonitrile	27	12.4	17.8	1.6	104.7
Benzene	168	77.4	37.6	1.7	413.4
Bis (Chloromethyl) Ether	0	0.0	ND	ND	ND
Bromoform	24	11.1	10.9	1.6	45.0
Carbon Tetrachloride	72	33.2	85.2	1.6	917.2
Chlorobenzene	158	72.8	230.6	1.5	6504.6
Chlorodibromomethane	17	7.8	19.1	1.6	245.1
Chloroethane	37	17.1	43.7	1.6	429.3
2-Chloroethylvinyl Ether	30	13.8	7.5	1.7	22.2
Chloroform	176	81.1	198.8	1.8	1798.9
Dichlorobromomethane	22	10.1	28.8	1.8	154.5
Dichlorodifluoromethane	5	2.3	33.2	3.7	53.6
1,1-Dichloroethane	118	54.4	81.5	1.6	1430.7
1,2-Dichloroethane	165	76.0	238.2	1.5	3528.1
1,1-Dichloroethylene	47	21.7	114.8	1.5	1261.3
1,2-Dichloropropane	33	15.2	31.5	1.1	490.6
1,3-Dichloropropylene	24	11.1	504.2	1.6	11585.1
Ethylbenzene	183	84.3	458.5	1.6	8929.6
Methyl Bromide	17	7.8	52.3	3.4	305.3
Methyl Chloride	28	12.9	354.9	3.4	1783.0
Methylene Chloride	160	73.7	410.9	2.0	4538.4
1,1,2,2-Tetrachloroethane	42	19.4	443.9	1.7	5695.7
Tetrachloroethylene	148	68.2	87.6	1.6	723.9
Toluene	208	95.9	745.9	1.7	9857.2
1,2-Trans-Dichloroethylene	103	47.5	82.4	1.7	2030.7
1,1,1-Trichloroethane	170	78.3	102.7	1.7	3430.8
1,1,2-Trichloroethane	13	6.0	3.6	1.5	8.1
Trichloroethylene	186	85.7	158.6	3.0	3744.0
Trichlorofluoromethane	23	10.6	72.2	1.7	640.4
Vinyl Chloride	34	15.7	42.0	1.5	202.6
ACID COMPOUNDS					
Chlorophenol	19	8.8	212.9	16.9	1186.9
2,4-Dichlorophenol	26	12.0	253.5	17.5	1537.9
2,4-Dimethylphenol	26	12.0	210.0	21.2	1728.4
4,6-Dinitro-O-Cresol	22	10.1	252.6	16.2	1790.4
2,4-Dinitrophenol	18	8.3	1799.7	68.7	8301.7
2-Nitrophenol	21	9.7	233.9	16.4	1662.2
4-Nitrophenol	1	0.5	103.6	103.6	103.6
P-Chloro-M-Cresol	14	6.5	788.3	16.4	8278.8
Pentachlorophenol	20	9.2	425.0	16.6	2443.7
Phenol	173	79.7	630.3	6.5	8511.8
2,4,6-Trichlorophenol	34	15.7	173.6	4.6	822.3
BASE NEUTRALS					
Acenaphthene	6	2.8	24.9	10.1	51.4
Acenaphthylene	2	0.9	37.7	19.0	56.4
Anthracene	6	2.8	60.5	20.5	122.4
Benzidine	0	0.0	ND	ND	ND
Benzo (a) Anthracene	0	0.0	ND	ND	ND
Benzo (a) Pyrene	13	6.0	342.8	17.1	879.9
3,4-Benzofluoranthene	1	0.5	17.5	17.5	17.5
Benzo (g,h,i) Perylene	4	1.8	41.2	16.6	112.2
Benzo (k) Fluoranthene	14	6.5	490.1	17.1	1668.4
Bis(2-Chloroethoxy)Methane	3	1.4	30.5	17.0	56.5
Bis (2-Chloroethyl) Ether	9	4.1	77.0	10.1	239.2
Bis(2-Chloroisopropyl)Ether	1	0.5	16.6	16.6	16.6
Bis(2-Ethylhexyl)Phthalate	7	3.2	198.5	15.4	802.5
4-Bromophenyl Phenyl Ether	3	1.4	17.7	17.5	18.1

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TABLE 2
(CONTINUED)

PASSAIC VALLEY SEWERAGE COMMISSIONERS
SUMMARY OF LABORATORY ANALYSIS
ORGANIC PRIORITY POLLUTANT INVESTIGATION
TREATMENT PLANT INFLUENT
(NOVEMBER 1984 - JANUARY 1986)

	--DETECTED NUMBER OF SAMPLES	COMPOUNDS-- PERCENT OF TOTAL SAMPLES	AVERAGE DAILY LOADING (lbs./day)	MINIMUM DAILY LOADING (lbs./day)	MAXIMUM DAILY LOADING (lbs./day)
BASE NEUTRALS					
Butylbenzyl Phthalate	20	9.2	177.7	5.7	516.8
2-Chloronaphthalene	8	3.7	24.3	4.8	55.1
4-Chlorophenyl Phenyl Ether	4	1.8	20.3	17.0	28.7
Chrysene	6	2.8	20.5	17.5	33.7
Dibenzo (a,h) Anthracene	2	0.9	76.3	61.2	91.4
1,2-Dichlorobenzene	27	12.4	76.8	12.7	246.8
1,3-Dichlorobenzene	8	3.7	34.1	5.0	107.1
1,4-Dichlorobenzene	21	9.7	129.2	15.3	304.2
3,3'-Dichlorobenzidine	0	0.0	ND	ND	ND
Diethyl Phthalate	17	7.8	208.0	17.2	698.9
Dimethyl Phthalate	11	5.1	327.5	67.9	688.1
Di-N-Butyl Phthalate	18	8.3	217.8	6.3	634.0
2,4-Dinitrotoluene	8	3.7	698.9	318.4	1399.0
2,6-Dinitrotoluene	9	4.1	214.0	16.4	1290.0
Di-N-Octyl Phthalate	8	3.7	496.2	21.2	821.0
1,2-Diphenylhydrazine	1	0.5	142.5	142.5	142.5
Fluoranthene	2	0.9	146.5	17.1	275.8
Fluorene	18	8.3	67.3	17.2	169.1
Hexachlorobenzene	3	1.4	423.1	145.9	623.9
Hexachlorobutadiene	4	1.8	131.9	99.9	161.7
Hexachlorocyclopentadiene	0	0.0	ND	ND	ND
Hexachloroethane	16	7.4	238.6	17.0	894.2
Indeno (1,2,3-cd) Pyrene	0	0.0	ND	ND	ND
Isophorone	18	8.3	292.8	17.4	911.9
Naphthalene	23	10.6	164.8	3.5	3096.1
Nitrobenzene	32	14.7	202.1	12.0	1115.7
N-Nitrosodimethylamine	0	0.0	ND	ND	ND
N-Nitrosodi-N-Propylamine	2	0.9	21.8	17.6	26.0
N-Nitrosodiphenylamine	0	0.0	ND	ND	ND
Phenanthrene	0	0.0	ND	ND	ND
Pyrene	9	4.1	42.2	16.2	87.6
1,2,4-Trichlorobenzene	13	6.0	79.5	18.5	372.6
PESTICIDES					
Alpha-BHC	7	3.2	0.12	0.07	0.15
Beta-BHC	3	1.4	0.13	0.04	0.26
Delta-BHC	3	1.4	0.68	0.15	1.72
Alpha-Endosulfan	5	2.3	0.94	0.16	2.14
Beta-Endosulfan	6	2.8	0.11	0.01	0.43
Endosulfan Sulfate	7	3.2	5.75	0.14	25.14
Endrin Aldehyde	3	1.4	4.77	0.02	12.90

TABLE 3

PASSAIC VALLEY SEWERAGE COMMISSIONERS
SUMMARY OF LABORATORY ANALYSIS
ORGANIC PRIORITY POLLUTANT INVESTIGATION
SECOND RIVER SAMPLING SITE
(JULY 1985 - JANUARY 1986)

	--DETECTED NUMBER OF SAMPLES	COMPOUNDS-- PERCENT OF TOTAL SAMPLES	AVERAGE DAILY LOADING (lbs. /day)	MINIMUM DAILY LOADING (lbs. /day)	MAXIMUM DAILY LOADING (lbs. /day)
VOLATILE ORGANICS					
Acrolein	28	29.2	3.0	0.7	27.2
Acrylonitrile	24	25.0	9.1	0.8	53.7
Benzene	31	32.3	11.3	1.7	55.2
Bis (Chloromethyl) Ether	1	1.0	15.7	15.7	15.7
Bromoform	21	21.9	227.4	0.8	4134.4
Carbon Tetrachloride	31	32.3	36.4	1.0	191.8
Chlorobenzene	65	67.7	123.2	0.7	1417.2
Chlorodibromomethane	12	12.5	2.2	0.8	4.9
Chloroethane	29	30.2	83.2	0.7	2145.2
2-Chloroethylvinyl Ether	30	31.3	23.2	0.8	553.1
Chloroform	63	65.6	134.7	0.9	679.7
Dichlorobromomethane	25	26.0	104.6	0.0	2488.9
Dichlorodifluoromethane	4	4.2	56.0	5.8	177.2
1,1-Dichloroethane	28	29.2	124.3	0.8	777.7
1,2-Dichloroethane	45	46.9	135.3	0.8	2813.4
1,1-Dichloroethylene	43	44.8	53.5	0.7	337.5
1,2-Dichloropropane	29	30.2	3.3	0.7	18.4
1,3-Dichloropropylene	22	22.9	83.8	0.7	1525.8
Ethylbenzene	64	66.7	246.0	0.7	3709.3
Methyl Bromide	23	24.0	79.3	1.5	423.3
Methyl Chloride	28	29.2	396.0	0.8	1602.3
Methylene Chloride	66	68.8	225.3	0.7	997.6
1,1,2,2-Tetrachloroethane	57	59.4	225.7	0.8	3641.5
Tetrachloroethylene	25	26.0	105.4	0.7	907.3
Toluene	91	94.8	177.7	2.6	4569.8
1,2-Trans-Dichloroethylene	66	68.8	77.8	0.7	613.3
1,1,1-Trichloroethane	58	60.4	36.1	0.7	581.9
1,1,2-Trichloroethane	9	9.4	4.2	0.8	12.9
Trichloroethylene	60	62.5	24.2	0.8	213.8
Trichlorofluoromethane	20	20.8	32.1	0.8	137.2
Vinyl Chloride	35	36.5	99.5	0.7	2461.0
ACID COMPOUNDS					
Chlorophenol	27	28.1	86.8	3.3	1020.9
2,4-Dichlorophenol	26	27.1	87.8	8.0	257.6
2,4-Dimethylphenol	24	25.0	190.2	10.7	1420.2
4,6-Dinitro-O-Cresol	16	16.7	467.7	13.4	2881.5
2,4-Dinitrophenol	13	13.5	2342.8	12.8	8345.5
2-Nitrophenol	19	19.8	110.7	8.0	503.1
4-Nitrophenol	4	4.2	42.3	9.0	115.8
P-Chloro-M-Cresol	17	17.7	279.0	1.6	1353.0
Pentachlorophenol	20	20.8	205.0	20.7	1242.4
Phenol	66	68.8	883.3	7.1	13296.3
2,4,6-Trichlorophenol	23	24.0	112.3	4.8	526.6
BASE NEUTRALS					
Acenaphthene	10	10.4	29.4	0.8	194.4
Acenaphthylene	9	9.4	30.3	5.7	80.4
Anthracene	7	7.3	36.3	5.8	115.5
Benzidine	0	0.0	ND	ND	ND
Benzo (a) Anthracene	3	3.1	183.2	95.0	229.7
Benzo (a) Pyrene	12	12.5	74.4	7.6	168.7
3,4-Benzofluoranthene	1	1.0	14.0	14.0	14.0
Benzo (g,h,i) Perylene	4	4.2	10.9	7.8	13.3
Benzo (k) Fluoranthene	10	10.4	75.8	14.3	139.9
Bis(2-Chloroethoxy)Methane	3	3.1	7.8	7.6	8.0
Bis (2-Chloroethyl) Ether	7	7.3	51.2	8.0	111.9
Bis(2-Chloroisopropyl)Ether	1	1.0	8.1	8.1	8.1
Bis(2-Ethylhexyl)Phthalate	12	12.5	81.2	4.1	252.1
4-Bromophenyl Phenyl Ether	3	3.1	19.2	8.0	41.6

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TABLE 3
(CONTINUED)

PASSAIC VALLEY SEWERAGE COMMISSIONERS
SUMMARY OF LABORATORY ANALYSIS
ORGANIC PRIORITY POLLUTANT INVESTIGATION
SECOND RIVER SAMPLING SITE
(JULY 1985 - JANUARY 1986)

	--DETECTED NUMBER OF SAMPLES	COMPOUNDS-- PERCENT OF TOTAL SAMPLES	AVERAGE DAILY LOADING (lbs./day)	MINIMUM DAILY LOADING (lbs./day)	MAXIMUM DAILY LOADING (lbs./day)
BASE NEUTRALS					
Butylbenzyl Phthalate	18	18.8	56.9	10.5	124.5
2-Chloronaphthalene	1	1.0	423.3	423.3	423.3
4-Chlorophenyl Phenyl Ether	2	2.1	7.8	7.6	8.0
Chrysene	5	5.2	38.7	7.5	135.9
Dibenzo (a,h) Anthracene	4	4.2	93.0	7.2	170.8
1,2-Dichlorobenzene	2	2.1	28.3	4.1	52.4
1,3-Dichlorobenzene	11	11.5	34.6	3.1	114.6
1,4-Dichlorobenzene	11	11.5	62.5	7.1	174.6
3,3'-Dichlorobenzidine	0	0.0	ND	ND	ND
Diethyl Phthalate	12	12.5	154.9	12.1	623.0
Dimethyl Phthalate	9	9.4	205.4	22.3	564.2
Di-N-Butyl Phthalate	11	11.5	212.9	14.8	516.6
2,4-Dinitrotoluene	7	7.3	306.1	50.7	612.4
2,6-Dinitrotoluene	8	8.3	62.3	3.6	174.8
Di-N-Octyl Phthalate	3	3.1	125.1	23.4	320.5
1,2-Diphenylhydrazine	0	0.0	ND	ND	ND
Fluoranthene	12	12.5	88.9	7.6	361.8
Fluorene	23	24.0	70.2	4.0	468.8
Hexachlorobenzene	5	5.2	197.0	61.1	342.5
Hexachlorobutadiene	7	7.3	25.2	0.0	59.8
Hexachlorocyclopentadiene	0	0.0	ND	ND	ND
Hexachloroethane	10	10.4	211.4	10.8	985.6
Indeno (1,2,3-cd) Pyrene	1	1.0	8.2	8.2	8.2
Isophorone	11	11.5	316.3	50.2	1586.7
Naphthalene	14	14.6	78.4	3.9	840.3
Nitrobenzene	32	33.3	96.1	7.5	275.8
N-Nitrosodimethylamine	1	1.0	7.6	7.6	7.6
N-Nitrosodi-N-Propylamine	1	1.0	7.5	7.5	7.5
N-Nitrosodiphenylamine	0	0.0	ND	ND	ND
Phenanthrene	0	0.0	ND	ND	ND
Pyrene	13	13.5	36.7	7.6	129.7
1,2,4-Trichlorobenzene	4	4.2	38.9	14.3	73.6
PESTICIDES					
Alpha-BHC	0	0.0	ND	ND	ND
Beta-BHC	3	3.1	0.03	0.02	0.04
Delta-BHC	2	2.1	0.10	0.04	0.16
Alpha-Endosulfan	1	1.0	0.02	0.02	0.02
Beta-Endosulfan	4	4.2	0.05	0.03	0.09
Endosulfan Sulfate	7	7.3	7.36	0.09	23.90
Endrin Aldehyde	3	3.1	3.35	0.02	10.00

TABLE 4
PASSAIC VALLEY SEWERAGE COMMISSIONERS
SUMMARY OF LABORATORY ANALYSIS
ORGANIC PRIORITY POLLUTANT INVESTIGATION
SOUTH SIDE INTERCEPTOR
(OCTOBER 1985 - JANUARY 1986)

	--DETECTED NUMBER OF SAMPLES	COMPOUNDS-- PERCENT OF TOTAL SAMPLES	AVERAGE DAILY LOADING (lbs./day)	MINIMUM DAILY LOADING (lbs./day)	MAXIMUM DAILY LOADING (lbs./day)
VOLATILE ORGANICS					
Acrolein	19	42.2	0.7	0.2	9.0
Acrylonitrile	22	48.9	3.0	0.2	27.2
Benzene	25	55.6	2.2	0.3	8.8
Bis (Chloromethyl) Ether	0	0.0	ND	ND	ND
Bromoform	12	26.7	11.4	0.3	115.1
Carbon Tetrachloride	8	17.8	10.1	0.2	45.8
Chlorobenzene	33	73.3	14.9	0.2	99.3
Chlorodibromomethane	9	20.0	4.2	0.0	18.3
Chloroethane	22	48.9	7.7	0.2	81.0
2-Chloroethylvinyl Ether	11	24.4	2.1	0.4	7.8
Chloroform	14	31.1	3.6	0.2	30.3
Dichlorobromomethane	15	33.3	6.0	0.0	52.6
Dichlorodifluoromethane	2	4.4	8.7	0.0	17.4
1,1-Dichloroethane	16	35.6	21.0	0.2	79.1
1,2-Dichloroethane	23	51.1	91.0	0.6	927.7
1,1-Dichloroethylene	19	42.2	24.9	0.2	135.8
1,2-Dichloropropane	4	8.9	4.0	1.5	9.1
1,3-Dichloropropylene	7	15.6	5.8	0.3	17.3
Ethylbenzene	32	71.1	9.7	0.2	60.5
Methyl Bromide	12	26.7	6.2	0.8	20.4
Methyl Chloride	6	13.3	11.6	0.2	41.6
Methylene Chloride	37	82.2	33.0	0.2	146.0
1,1,2,2-Tetrachloroethane	20	44.4	22.3	0.2	401.8
Tetrachloroethylene	6	13.3	2.7	0.3	12.7
Toluene	38	84.4	9.7	0.2	50.9
1,2-Trans-Dichloroethylene	30	66.7	13.5	0.2	115.8
1,1,1-Trichloroethane	25	55.6	5.1	0.2	30.6
1,1,2-Trichloroethane	5	11.1	0.6	0.2	1.7
Trichloroethylene	22	48.9	9.7	0.2	124.5
Trichlorofluoromethane	4	8.9	43.6	1.0	100.7
Vinyl Chloride	12	26.7	8.1	0.0	28.0
ACID COMPOUNDS					
Chlorophenol	18	40.0	274.0	2.1	2883.0
2,4-Dichlorophenol	10	22.2	4257.4	4.2	4182.2
2,4-Dimethylphenol	10	22.2	1913.1	8.9	15811.1
4,6-Dinitro-O-Cresol	14	31.1	47.5	1.4	193.0
2,4-Dinitrophenol	6	13.3	95.5	19.1	246.8
2-Nitrophenol	9	20.0	160.9	8.8	760.2
4-Nitrophenol	4	8.9	5.8	1.9	16.2
P-Chloro-M-Cresol	10	22.2	62.4	2.1	220.0
Pentachlorophenol	2	4.4	43.3	5.7	81.0
Phenol	30	66.7	1414.7	0.0	2625.8
2,4,6-Trichlorophenol	8	17.8	155.6	6.9	998.9
BASE NEUTRALS					
Acenaphthene	2	4.4	111.4	13.6	209.3
Acenaphthylene	6	13.3	20.5	2.1	55.2
Anthracene	5	11.1	56.5	4.1	215.7
Benzidine	0	0.0	ND	ND	ND
Benzo (a) Anthracene	1	2.2	99.1	99.1	99.1
Benzo (a) Pyrene	8	17.8	57.5	5.5	208.8
3,4-Benzofluoranthene	0	0.0	ND	ND	ND
Benzo (g,h,i) Perylene	3	6.7	15.0	10.5	19.5
Benzo (k) Fluoranthene	7	15.6	74.2	12.1	215.9
Bis(2-Chloroethoxy)Methane	2	4.4	13.8	0.0	27.5
Bis (2-Chloroethyl) Ether	0	0.0	ND	ND	ND
Bis(2-Chloroisopropyl)Ether	0	0.0	ND	ND	ND
Bis(2-Ethylhexyl)Phthalate	8	17.8	34.4	1.3	176.5
4-Bromophenyl Phenyl Ether	0	0.0	ND	ND	ND

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TABLE 4
(CONTINUED)

PASSAIC VALLEY SEWERAGE COMMISSIONERS
SUMMARY OF LABORATORY ANALYSIS
ORGANIC PRIORITY POLLUTANT INVESTIGATION
SOUTH SIDE INTERCEPTOR
(OCTOBER 1985 - JANUARY 1986)

	--DETECTED NUMBER OF SAMPLES	COMPOUNDS-- PERCENT OF TOTAL SAMPLES	AVERAGE DAILY LOADING (lbs./day)	MINIMUM DAILY LOADING (lbs./day)	MAXIMUM DAILY LOADING (lbs./day)
BASE NEUTRALS					
Butylbenzyl Phthalate	3	6.7	15.0	2.2	38.9
2-Chloronaphthalene	0	0.0	ND	ND	ND
4-Chlorophenyl Phenyl Ether	0	0.0	ND	ND	ND
Chrysene	1	2.2	1008.5	1008.5	1008.5
Dibenzo (a,h) Anthracene	1	2.2	37.5	37.5	37.5
1,2-Dichlorobenzene	0	0.0	ND	ND	ND
1,3-Dichlorobenzene	0	0.0	ND	ND	ND
1,4-Dichlorobenzene	0	0.0	ND	ND	ND
3,3'-Dichlorobenzidine	0	0.0	ND	ND	ND
Diethyl Phthalate	9	20.0	68.8	2.8	495.3
Dimethyl Phthalate	3	6.7	15.3	2.1	39.6
Di-N-Butyl Phthalate	1	2.2	2.8	2.8	2.8
2,4-Dinitrotoluene	0	0.0	ND	ND	ND
2,6-Dinitrotoluene	1	2.2	2.1	2.1	2.1
Di-N-Octyl Phthalate	2	4.4	7.2	5.7	8.6
1,2-Diphenylhydrazine	0	0.0	ND	ND	ND
Fluoranthene	2	4.4	28.9	26.9	31.0
Fluorene	4	8.9	58.4	1.0	203.0
Hexachlorobenzene	0	0.0	ND	ND	ND
Hexachlorobutadiene	0	0.0	ND	ND	ND
Hexachlorocyclopentadiene	0	0.0	ND	ND	ND
Hexachloroethane	5	11.1	8.6	2.3	14.8
Indeno (1,2,3-cd) Pyrene	0	0.0	ND	ND	ND
Isophorone	3	6.7	13.5	6.5	24.0
Naphthalene	2	4.4	48.0	29.6	66.5
Nitrobenzene	10	22.2	34.1	7.1	87.4
N-Nitrosodimethylamine	0	0.0	ND	ND	ND
N-Nitrosodi-N-Propylamine	0	0.0	ND	ND	ND
N-Nitrosodiphenylamine	0	0.0	ND	ND	ND
Phenanthrene	0	0.0	ND	ND	ND
Pyrene	7	15.6	25.5	6.9	63.6
1,2,4-Trichlorobenzene	0	0.0	ND	ND	ND
PESTICIDES					
Alpha-BHC	0	0.0	ND	ND	ND
Beta-BHC	0	0.0	ND	ND	ND
Delta-BHC	1	2.2	0.01	0.01	0.01
Alpha-Endosulfan	1	2.2	0.03	0.03	0.03
Beta-Endosulfan	4	8.9	0.02	0.01	0.06
Endosulfan Sulfate	8	17.8	0.99	0.14	2.59
Endrin Aldehyde	4	8.9	0.61	0.01	2.37

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TABLE 5

PASSAIC VALLEY SEWERAGE COMMISSIONERS
SUMMARY OF LABORATORY ANALYSIS
ORGANIC PRIORITY POLLUTANT INVESTIGATION
RAYMOND BOULEVARD (BROWN STREET INTERCEPTOR)
(OCTOBER 1985 - JANUARY 1986)

	--DETECTED NUMBER OF SAMPLES	COMPOUNDS-- PERCENT OF TOTAL SAMPLES	AVERAGE DAILY LOADING (lbs./day)	MINIMUM DAILY LOADING (lbs./day)	MAXIMUM DAILY LOADING (lbs./day)
VOLATILE ORGANICS					
Acrolein	27	60.0	0.04	0.01	0.5
Acrylonitrile	19	42.2	ND	ND	ND
Benzene	23	51.1	0.2	0.01	1.7
Bis (Chloromethyl) Ether	0	0.0	ND	ND	ND
Bromoform	11	24.4	6.5	0.02	50.0
Carbon Tetrachloride	18	40.0	1.4	0.01	11.0
Chlorobenzene	34	75.6	1.6	0.01	13.7
Chlorodibromomethane	14	31.1	0.9	0.01	5.3
Chloroethane	28	62.2	0.3	0.01	1.8
2-Chloroethylvinyl Ether	18	40.0	0.2	0.02	2.2
Chloroform	19	42.2	2.4	0.01	36.5
Dichlorobromomethane	18	40.0	0.2	0.01	1.0
Dichlorodifluoromethane	3	6.7	0.9	0.04	2.4
1,1-Dichloroethane	24	53.3	1.2	0.02	11.0
1,2-Dichloroethane	32	71.1	0.9	0.02	5.8
1,1-Dichloroethylene	20	44.4	0.8	0.01	6.2
1,2-Dichloropropane	16	35.6	0.3	0.01	1.4
1,3-Dichloropropylene	7	15.6	1.2	0.01	7.6
Ethylbenzene	36	80.0	0.9	0.01	6.1
Methyl Bromide	17	37.8	0.3	0.03	1.5
Methyl Chloride	4	8.9	0.2	0.01	0.6
Methylene Chloride	29	64.4	1.4	0.01	6.2
1,1,2,2-Tetrachloroethane	13	28.9	1.0	0.01	11.6
Tetrachloroethylene	4	8.9	2.1	0.1	7.8
Toluene	43	95.6	0.9	0.04	8.0
1,2-Trans-Dichloroethylene	23	51.1	0.8	0.01	5.7
1,1,1-Trichloroethane	28	62.2	0.5	0.01	5.7
1,1,2-Trichloroethane	7	15.6	0.1	0.01	0.5
Trichloroethylene	17	37.8	1.0	0.01	14.3
Trichlorofluoromethane	3	6.7	0.3	0.1	0.9
Vinyl Chloride	10	22.2	0.4	0.01	2.2
ACID COMPOUNDS					
Chlorophenol	16	35.6	1.2	0.02	5.2
2,4-Dichlorophenol	11	24.4	1.4	0.1	6.1
2,4-Dimethylphenol	13	28.9	2.8	0.1	7.9
4,6-Dinitro-O-Cresol	14	31.1	0.5	0.1	1.6
2,4-Dinitrophenol	1	2.2	0.1	0.1	0.1
2-Nitrophenol	10	22.2	12.7	0.3	62.5
4-Nitrophenol	1	2.2	0.8	0.8	0.8
P-Chloro-M-Cresol	6	13.3	0.8	0.2	1.8
Pentachlorophenol	5	11.1	1.6	0.3	2.9
Phenol	28	62.2	18.9	0.1	109.7
2,4,6-Trichlorophenol	7	15.6	21.7	0.9	120.9
BASE NEUTRALS					
Acenaphthene	7	15.6	0.4	0.1	1.9
Acenaphthylene	22	48.9	2.0	0.2	21.0
Anthracene	14	31.1	0.9	0.2	2.8
Benzidine	0	0.0	ND	ND	ND
Benzo (a) Anthracene	2	4.4	0.3	0.3	0.3
Benzo (a) Pyrene	5	11.1	1.8	0.3	5.7
3,4-Benzofluoranthene	0	0.0	ND	ND	ND
Benzo (g,h,i) Perylene	6	13.3	1.5	0.2	4.7
Benzo (k) Fluoranthene	8	17.8	2.5	0.5	6.5
Bis(2-Chloroethoxy)Methane	5	11.1	1.6	0.1	6.4
Bis (2-Chloroethyl) Ether	0	0.0	ND	ND	ND
Bis(2-Chloroisopropyl)Ether	0	0.0	ND	ND	ND
Bis(2-Ethylhexyl)Phthalate	7	15.6	0.6	0.1	2.1
4-Bromophenyl Phenyl Ether	1	2.2	0.6	0.6	0.6

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TABLE 5
(CONTINUED)

PASSAIC VALLEY SEWERAGE COMMISSIONERS
SUMMARY OF LABORATORY ANALYSIS
ORGANIC PRIORITY POLLUTANT INVESTIGATION
RAYMOND BOULEVARD (BROWN STREET INTERCEPTOR)
(OCTOBER 1985 - JANUARY 1986)

	--DETECTED NUMBER OF SAMPLES	COMPOUNDS-- PERCENT OF TOTAL SAMPLES	AVERAGE DAILY LOADING (lbs./day)	MINIMUM DAILY LOADING (lbs./day)	MAXIMUM DAILY LOADING (lbs./day)
BASE NEUTRALS					
Butylbenzyl Phthalate	3	6.7	0.2	0.1	0.5
2-Chloronaphthalene	0	0.0	ND	ND	ND
4-Chlorophenyl Phenyl Ether	0	0.0	ND	ND	ND
Chrysene	1	2.2	0.4	0.4	0.4
Dibenzo (a,h) Anthracene	5	11.1	1.5	0.3	4.5
1,2-Dichlorobenzene	0	0.0	ND	ND	ND
1,3-Dichlorobenzene	0	0.0	ND	ND	ND
1,4-Dichlorobenzene	0	0.0	ND	ND	ND
3,3'-Dichlorobenzidine	0	0.0	ND	ND	ND
Diethyl Phthalate	5	11.1	1.1	0.6	1.7
Dimethyl Phthalate	6	13.3	3.3	0.3	12.5
Di-N-Butyl Phthalate	0	0.0	ND	ND	ND
2,4-Dinitrotoluene	0	0.0	ND	ND	ND
2,6-Dinitrotoluene	4	8.9	0.3	0.1	0.4
Di-N-Octyl Phthalate	4	8.9	2.9	0.1	7.5
1,2-Diphenylhydrazine	0	0.0	ND	ND	ND
Fluoranthene	8	17.8	2.4	0.1	6.2
Fluorene	25	55.6	1.2	0.1	4.4
Hexachlorobenzene	4	8.9	1.1	0.1	2.6
Hexachlorobutadiene	1	2.2	0.1	0.1	0.1
Hexachlorocyclopentadiene	0	0.0	ND	ND	ND
Hexachloroethane	5	11.1	1.0	0.2	2.2
Indeno (1,2,3-cd) Pyrene	0	0.0	ND	ND	ND
Isophorone	2	4.4	1.3	0.2	2.4
Naphthalene	5	11.1	0.6	0.0	1.9
Nitrobenzene	5	11.1	0.7	0.1	1.5
N-Nitrosodimethylamine	0	0.0	ND	ND	ND
N-Nitrosodi-N-Propylamine	0	0.0	ND	ND	ND
N-Nitrosodiphenylamine	0	0.0	ND	ND	ND
Phenanthrene	0	0.0	ND	ND	ND
Pyrene	7	15.6	1.4	0.1	3.8
1,2,4-Trichlorobenzene	0	0.0	ND	ND	ND
PESTICIDES					
Alpha-BHC	0	0.0	ND	ND	ND
Beta-BHC	3	6.7	0.01	0.01	0.01
Delta-BHC	1	2.2	0.10	0.10	0.10
Alpha-Endosulfan	0	0.0	ND	ND	ND
Beta-Endosulfan	3	6.7	0.01	0.01	0.01
Endosulfan Sulfate	6	13.3	0.07	0.01	0.27
Endrin Aldehyde	3	6.7	0.15	0.02	0.39

KLLC03B:08

however, the volatility of compounds as well as the exact timing required to match sewage flow as Organic Compounds pass through several monitoring points are suggested. Additionally, pollutants are often "dumped" into the waste stream and travel through the piping network as a slug of flow not subject to dispersion and easily sampled at one location while missed at another. The exception to this is the compounds detected in excess of eighty percent of the samples, suggesting that a larger database will mitigate some of the inaccuracies inherent in this type of sampling.

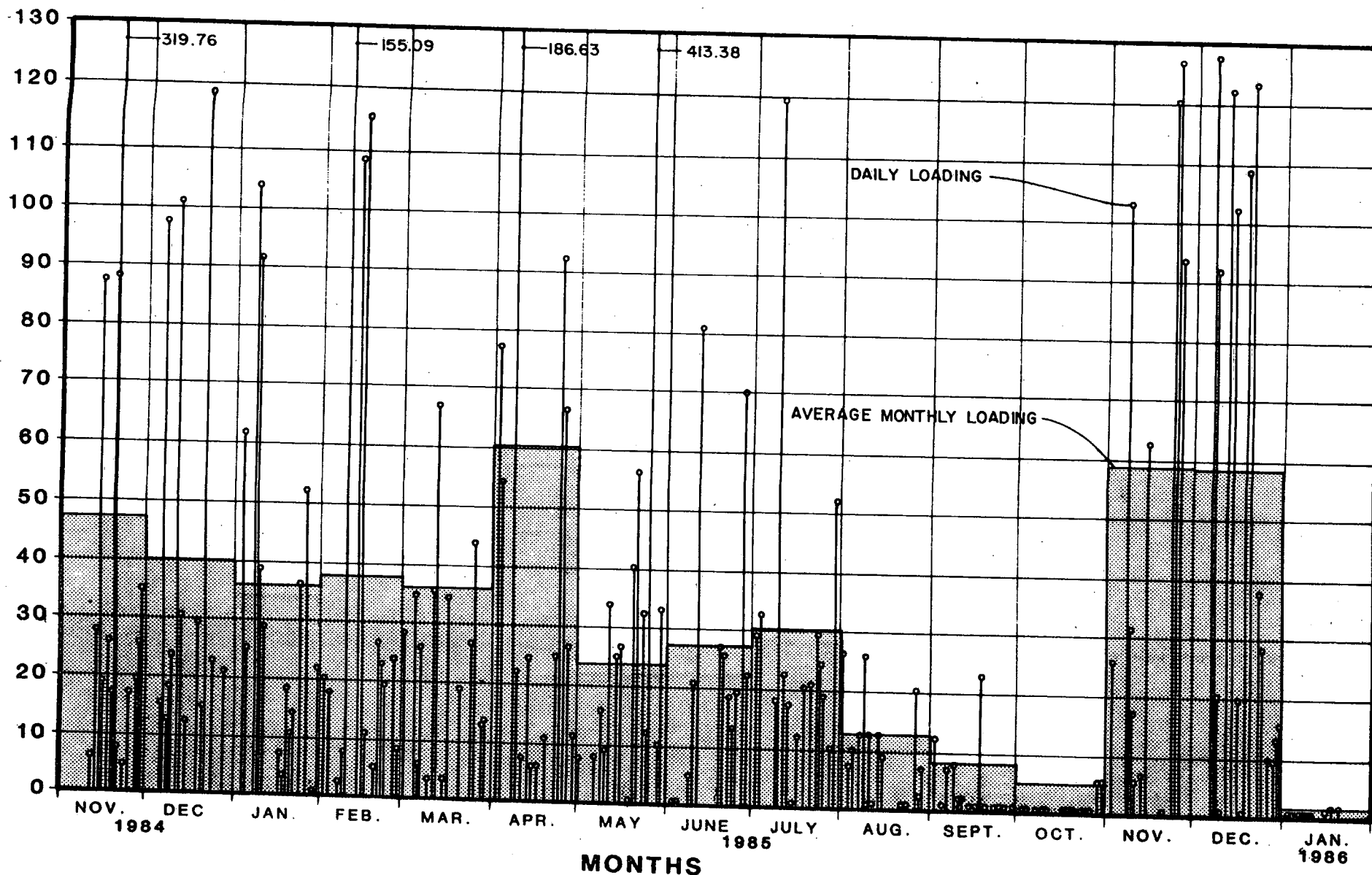
Plates E-1 thru E-33 have been prepared to show a graphical representation of influent loading for selected organic priority pollutants during the 14 months of the investigation. The Plates show the individual loadings for each day samples were obtained (as pounds per day) as well as the average monthly loading developed from these data. This graphical representation was prepared to evaluate the consistency of loading to the Treatment Plant for selected compounds. The specific compounds chosen for evaluation were based upon data presented in Table "2" and the Summary Tables, with organic compounds selected from each of the fractions analyzed on the basis of consistent loadings as well as seasonal loadings (as could be determined from the data).

The evaluation suggested consistent loadings throughout the investigation of Volatile Organic Compounds such that over one - third of the Volatile Organic Compounds were present in the waste

KL003810

PLATE E-1

POUNDS PER DAY (LBS./DAY)



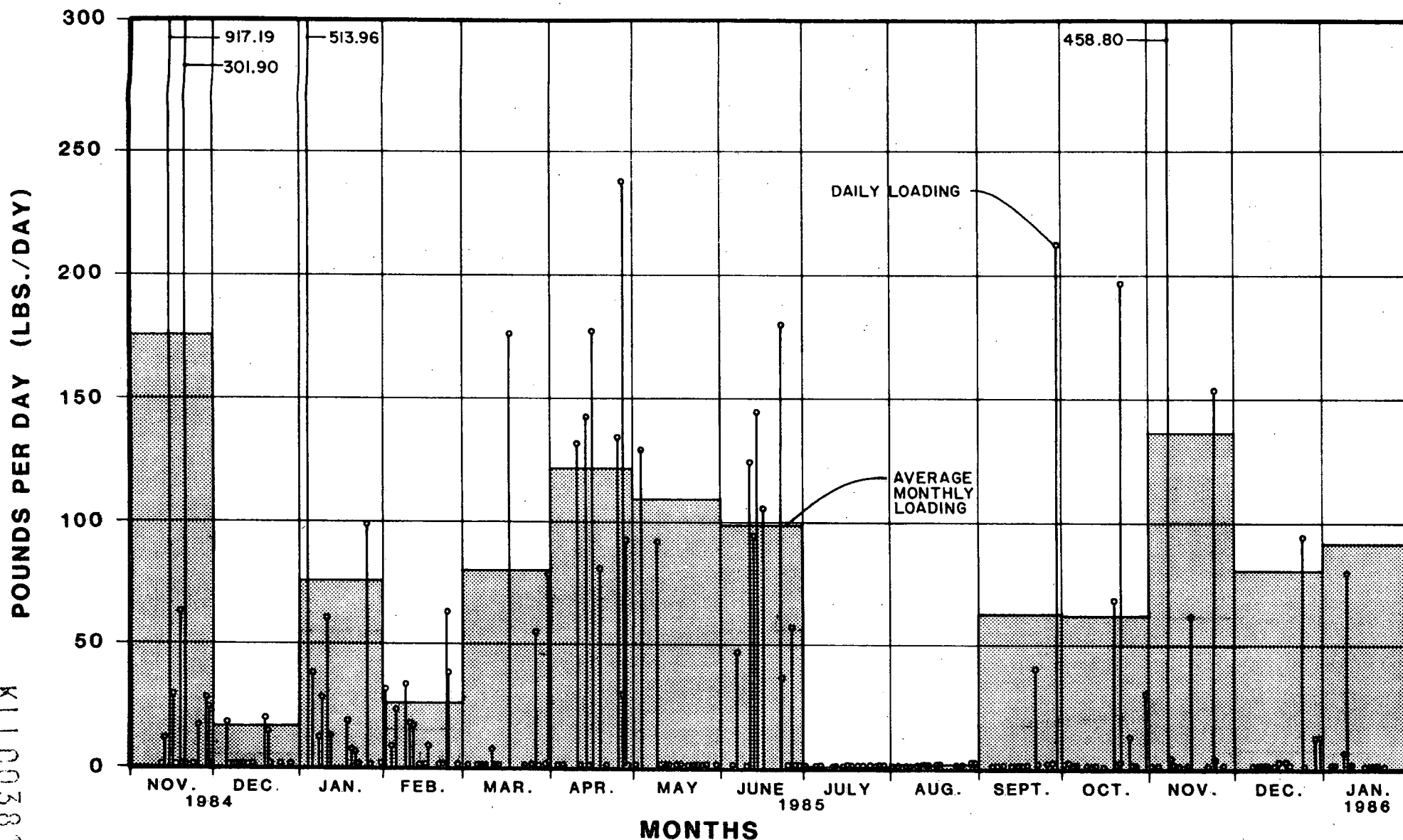
PASSAIC VALLEY SEWERAGE COMMISSIONERS
NEWARK, NEW JERSEY
ORGANIC PRIORITY POLLUTANT INVESTIGATION
BENZENE LOADING
TREATMENT PLANT INFLUENT

CFM Incorporated
Environmental Engineering Services
Whippany, New Jersey

NOTE- VALUES SHOWN AS ZERO WERE BELOW THE
DETECTION LIMIT AND ARE ONLY SHOWN TO
INDICATE SAMPLING WAS PERFORMED ON
THAT DATE.

KLL003811

PLATE E-2



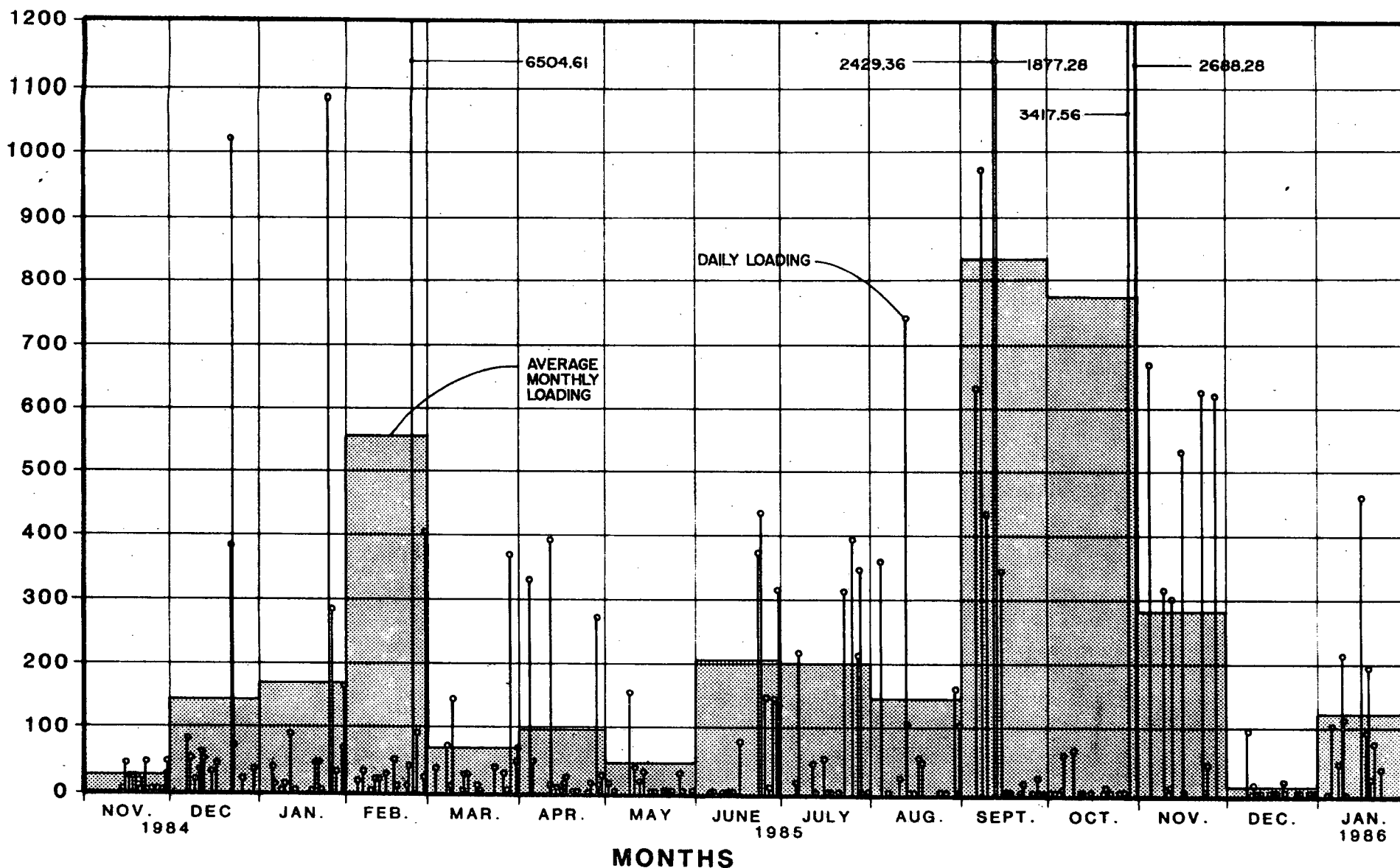
PASSAIC VALLEY SEWERAGE COMMISSIONERS
NEWARK, NEW JERSEY
ORGANIC PRIORITY POLLUTANT INVESTIGATION
CARBON TETRACHLORIDE LOADING

TREATMENT PLANT INFLUENT

CFM Incorporated
Environmental Engineering Services
Whippany, New Jersey

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DETECTION LIMIT AND ARE ONLY SHOWN TO
INDICATE SAMPLING WAS PERFORMED ON
THAT DATE.

POUNDS PER DAY (LBS./DAY)



PASSAIC VALLEY SEWERAGE COMMISSIONERS
NEWARK, NEW JERSEY
ORGANIC PRIORITY POLLUTANT INVESTIGATION
CHLOROBENZENE LOADING

TREATMENT PLANT INFLUENT

CFM Incorporated
Environmental Engineering Services
Whippany, New Jersey

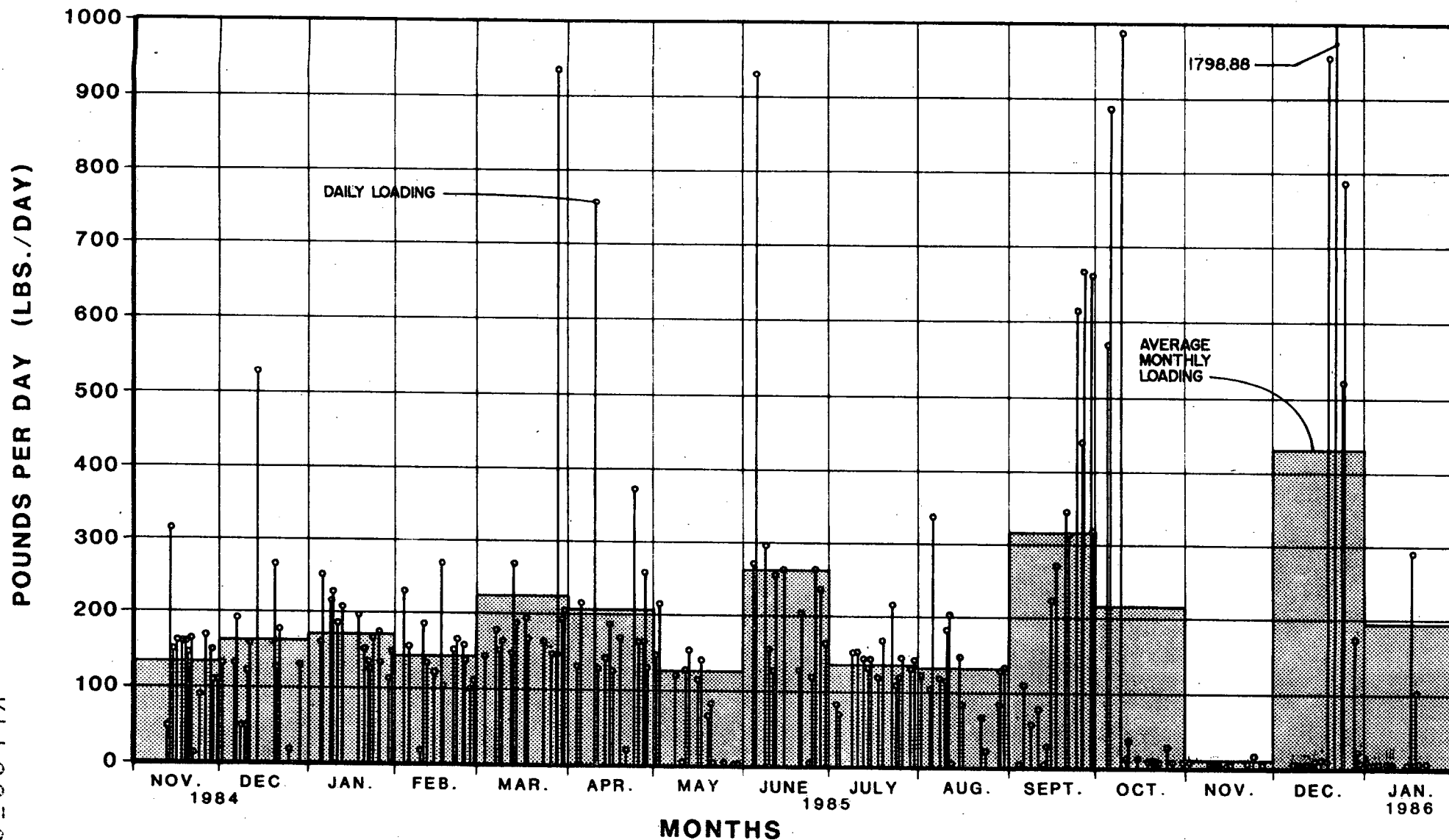
NOTE- VALUES SHOWN AS ZERO WERE BELOW THE
DETECTION LIMIT AND ARE ONLY SHOWN TO
INDICATE SAMPLING WAS PERFORMED ON
THAT DATE.

KL0003812

PLATE E-3

KL0003813

PLATE E-4



NOTE- VALUES SHOWN AS ZERO WERE BELOW THE DETECTION LIMIT AND ARE ONLY SHOWN TO INDICATE SAMPLING WAS PERFORMED ON THAT DATE.

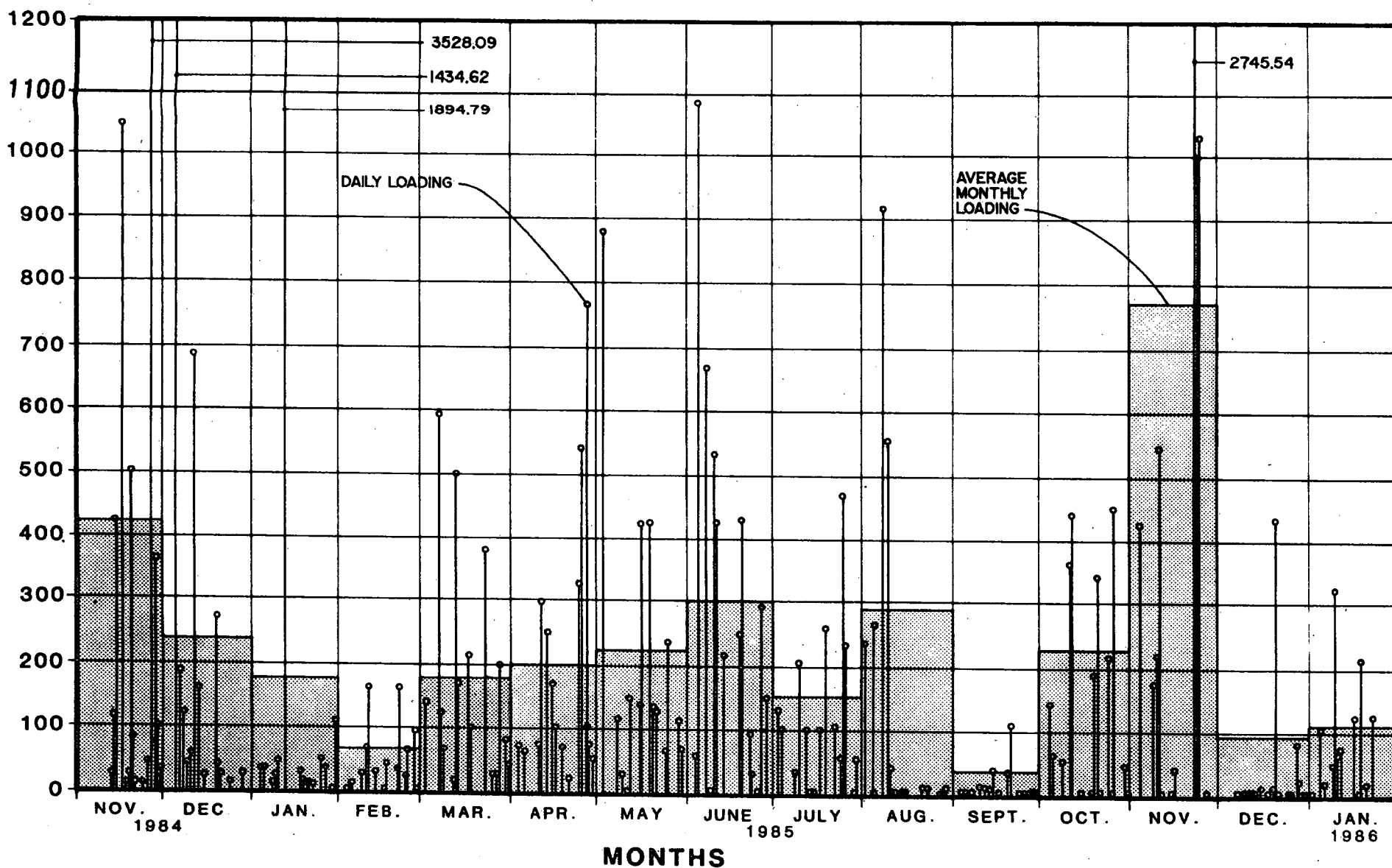
PASSAIC VALLEY SEWERAGE COMMISSIONERS
NEWARK, NEW JERSEY
ORGANIC PRIORITY POLLUTANT INVESTIGATION
CHLOROFORM LOADING
TREATMENT PLANT INFLUENT

CFM Incorporated
Environmental Engineering Services
Whippany, New Jersey

KL003014

PLATE E-5

POUNDS PER DAY (LBS./DAY)



PASSAIC VALLEY SEWERAGE COMMISSIONERS
NEWARK, NEW JERSEY
ORGANIC PRIORITY POLLUTANT INVESTIGATION
1,2-DICHLOROETHANE LOADING
TREATMENT PLANT INFLUENT

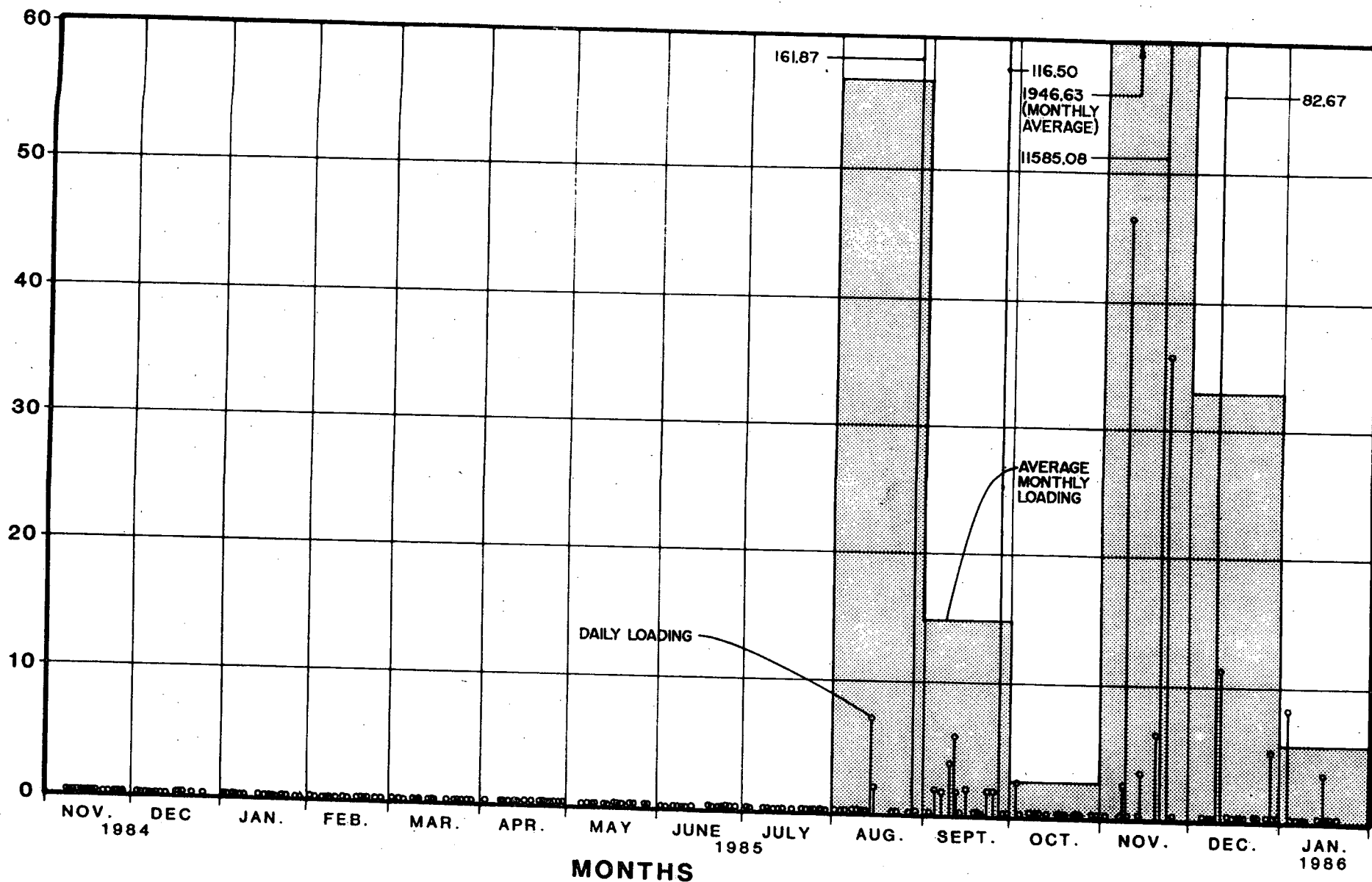
CFM Incorporated
Environmental Engineering Services
Whippany, New Jersey

NOTE- VALUES SHOWN AS ZERO WERE BELOW THE
DETECTION LIMIT AND ARE ONLY SHOWN TO
INDICATE SAMPLING WAS PERFORMED ON
THAT DATE.

KL003815

PLATE E-6

POUNDS PER DAY (LBS./DAY)



NOTE- VALUES SHOWN AS ZERO WERE BELOW THE DETECTION LIMIT AND ARE ONLY SHOWN TO INDICATE SAMPLING WAS PERFORMED ON THAT DATE.

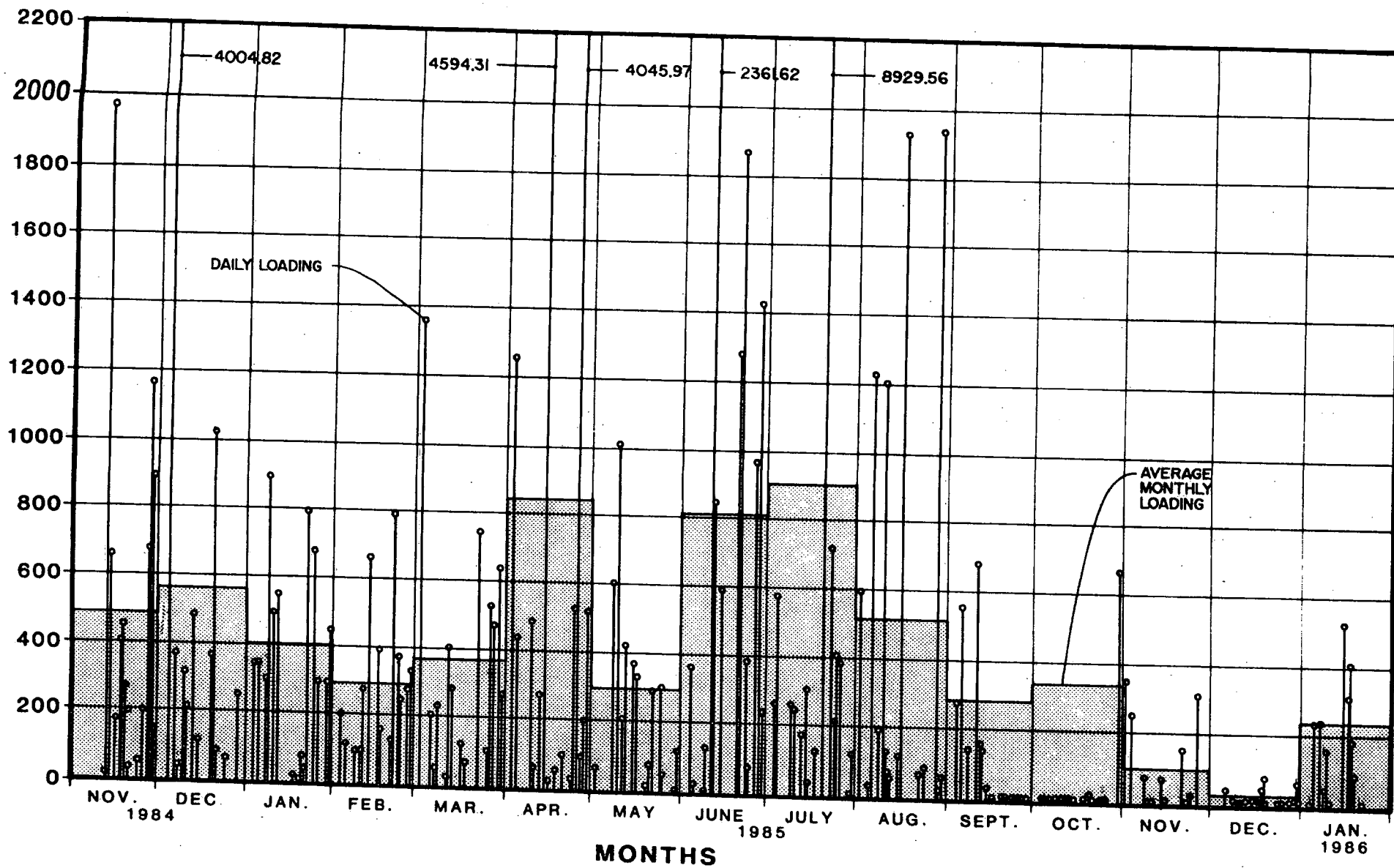
PASSAIC VALLEY SEWERAGE COMMISSIONERS
NEWARK, NEW JERSEY
ORGANIC PRIORITY POLLUTANT INVESTIGATION
1,3-DICHLOROPROPYLENE LOADING

TREATMENT PLANT INFLUENT

CFM Incorporated
Environmental Engineering Services
Whippany, New Jersey

KL003816 PLATE E-7

POUNDS PER DAY (LBS./DAY)

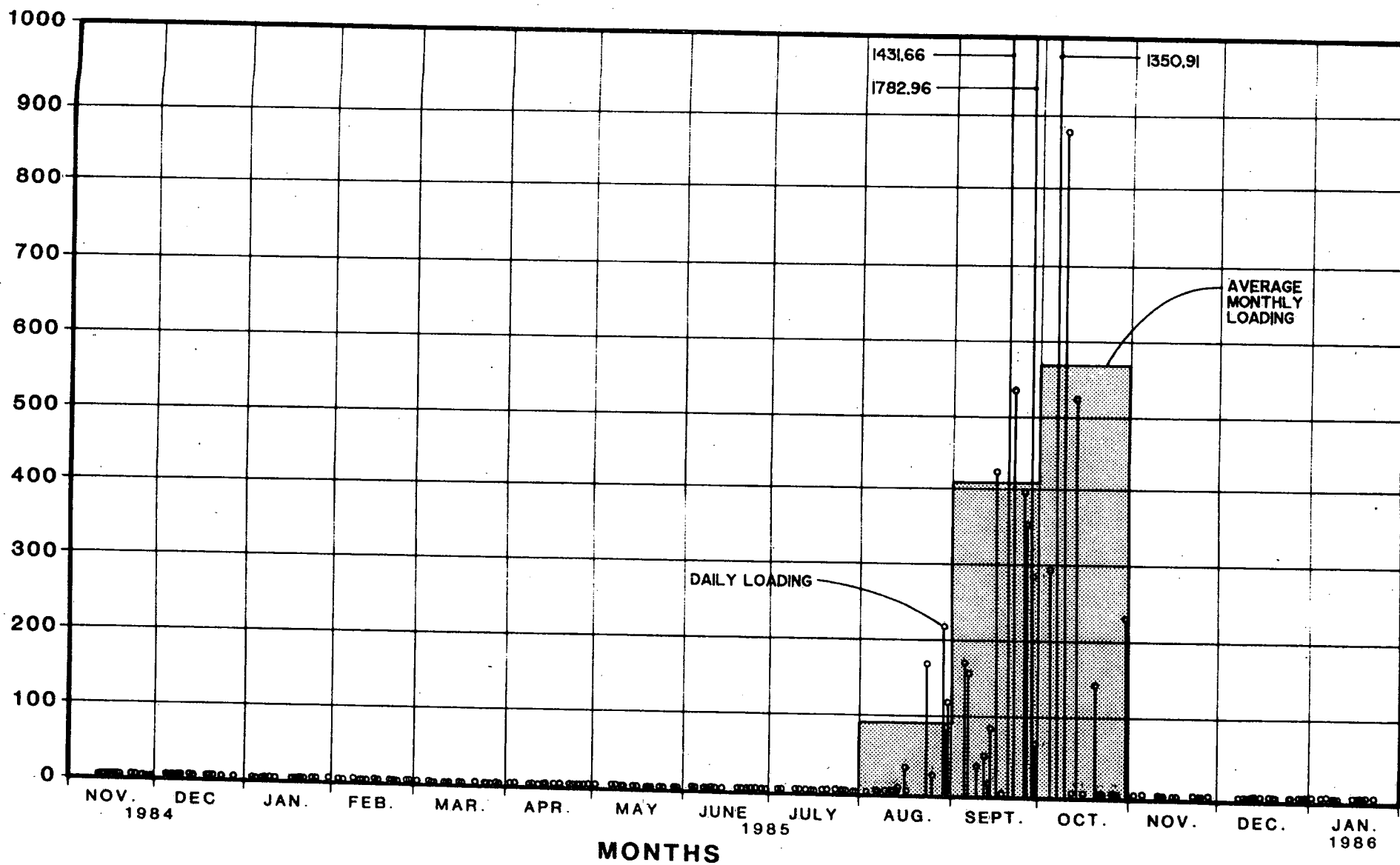


NOTE- VALUES SHOWN AS ZERO WERE BELOW THE DETECTION LIMIT AND ARE ONLY SHOWN TO INDICATE SAMPLING WAS PERFORMED ON THAT DATE.

PASSAIC VALLEY SEWERAGE COMMISSIONERS
NEWARK, NEW JERSEY
ORGANIC PRIORITY POLLUTANT INVESTIGATION
ETHYLBENZENE LOADING
TREATMENT PLANT INFLUENT

CFM Incorporated
Environmental Engineering Services
Whippany, New Jersey

POUNDS PER DAY (LBS./DAY)



PASSAIC VALLEY SEWERAGE COMMISSIONERS
NEWARK, NEW JERSEY
ORGANIC PRIORITY POLLUTANT INVESTIGATION
METHYL CHLORIDE LOADING
TREATMENT PLANT INFLUENT

CFM Incorporated
Environmental Engineering Services
Whippany, New Jersey

NOTE- VALUES SHOWN AS ZERO WERE BELOW THE
DETECTION LIMIT AND ARE ONLY SHOWN TO
INDICATE SAMPLING WAS PERFORMED ON
THAT DATE.

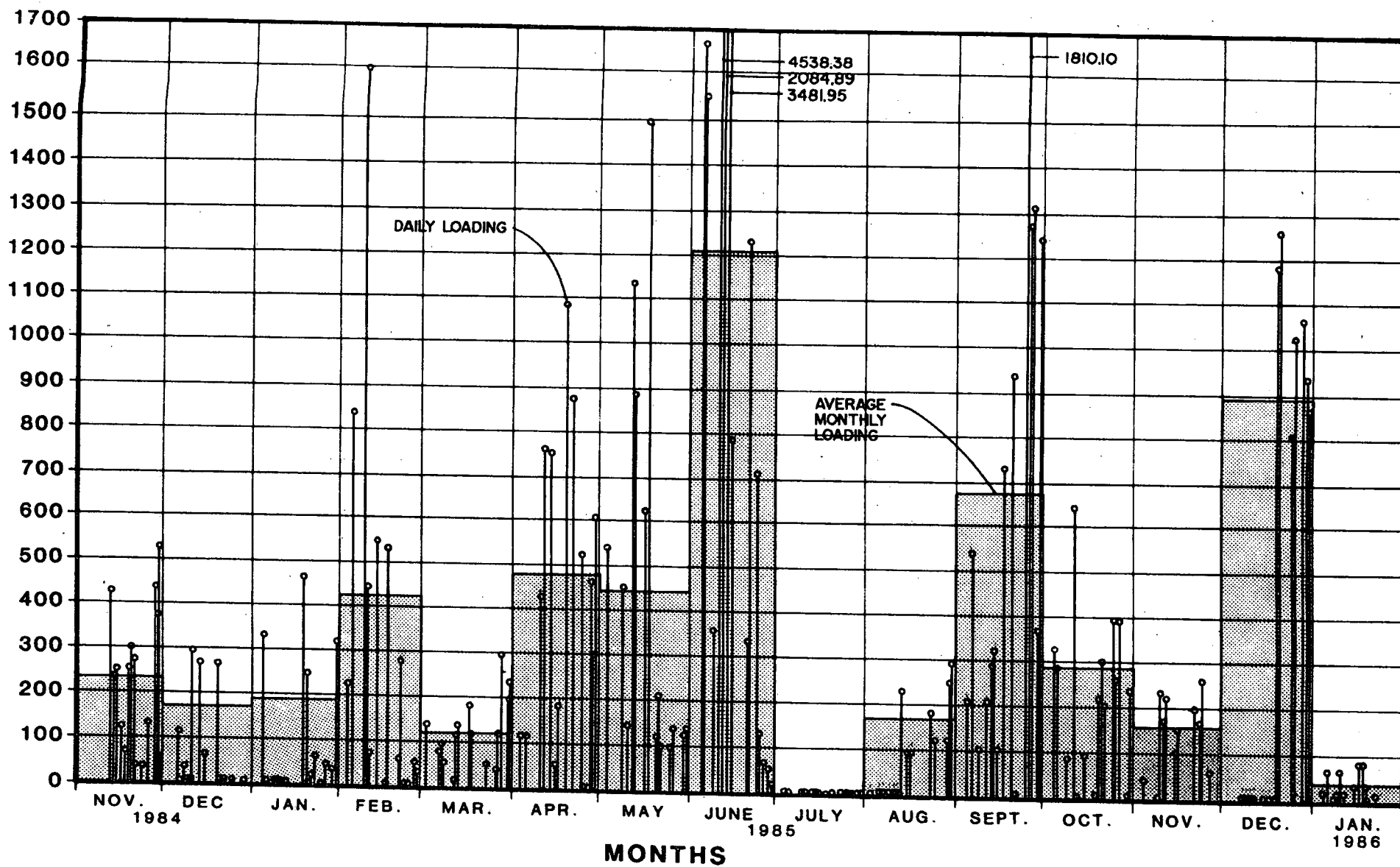
KLL003817

PLATE E-8

KL003818

PLATE E-9

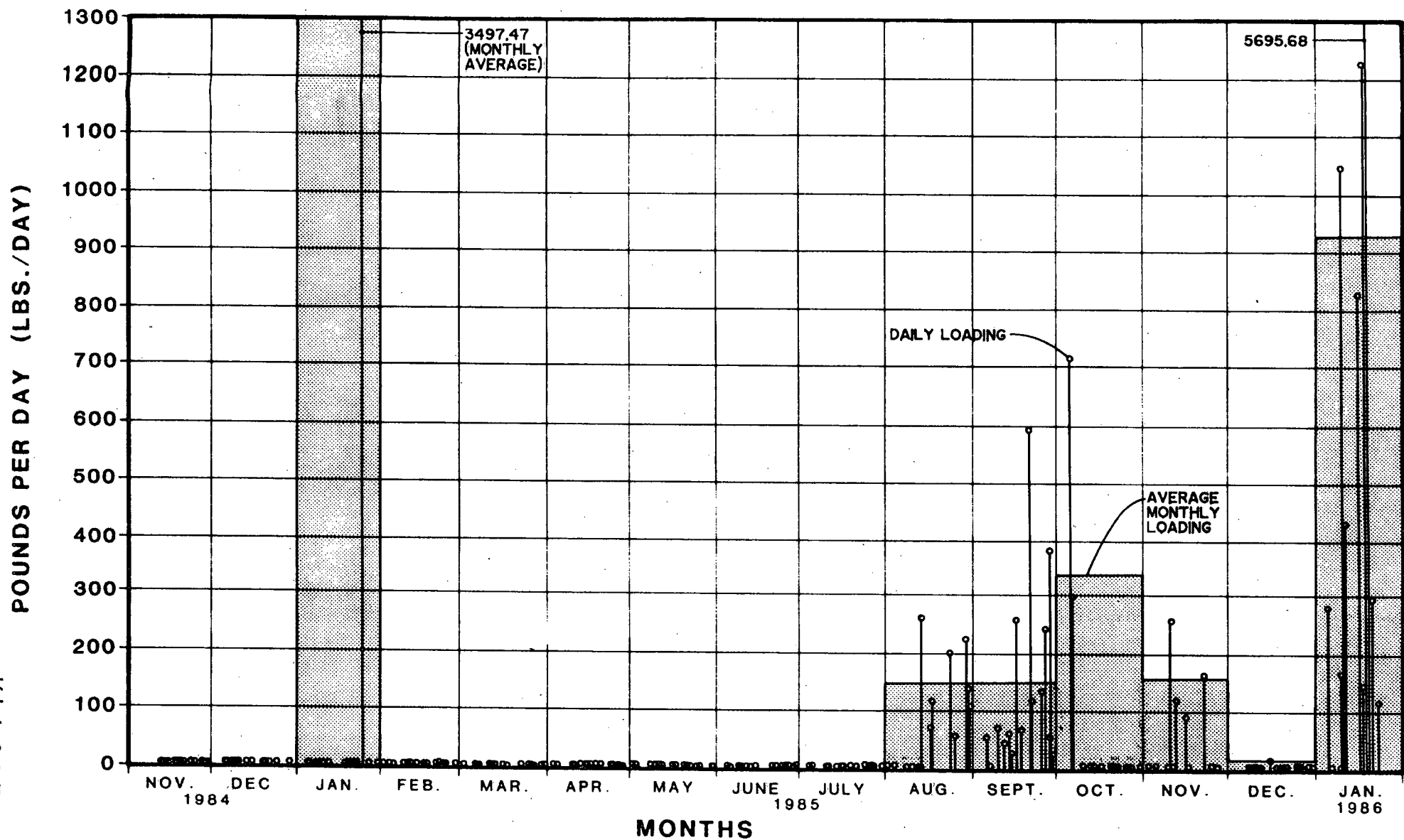
POUNDS PER DAY (LBS./DAY)



NOTE- VALUES SHOWN AS ZERO WERE BELOW THE
DETECTION LIMIT AND ARE ONLY SHOWN TO
INDICATE SAMPLING WAS PERFORMED ON
THAT DATE.

PASSAIC VALLEY SEWERAGE COMMISSIONERS
NEWARK, NEW JERSEY
ORGANIC PRIORITY POLLUTANT INVESTIGATION
METHYLENE CHLORIDE LOADING
TREATMENT PLANT INFLUENT

CFM Incorporated
Environmental Engineering Services
Whippany, New Jersey



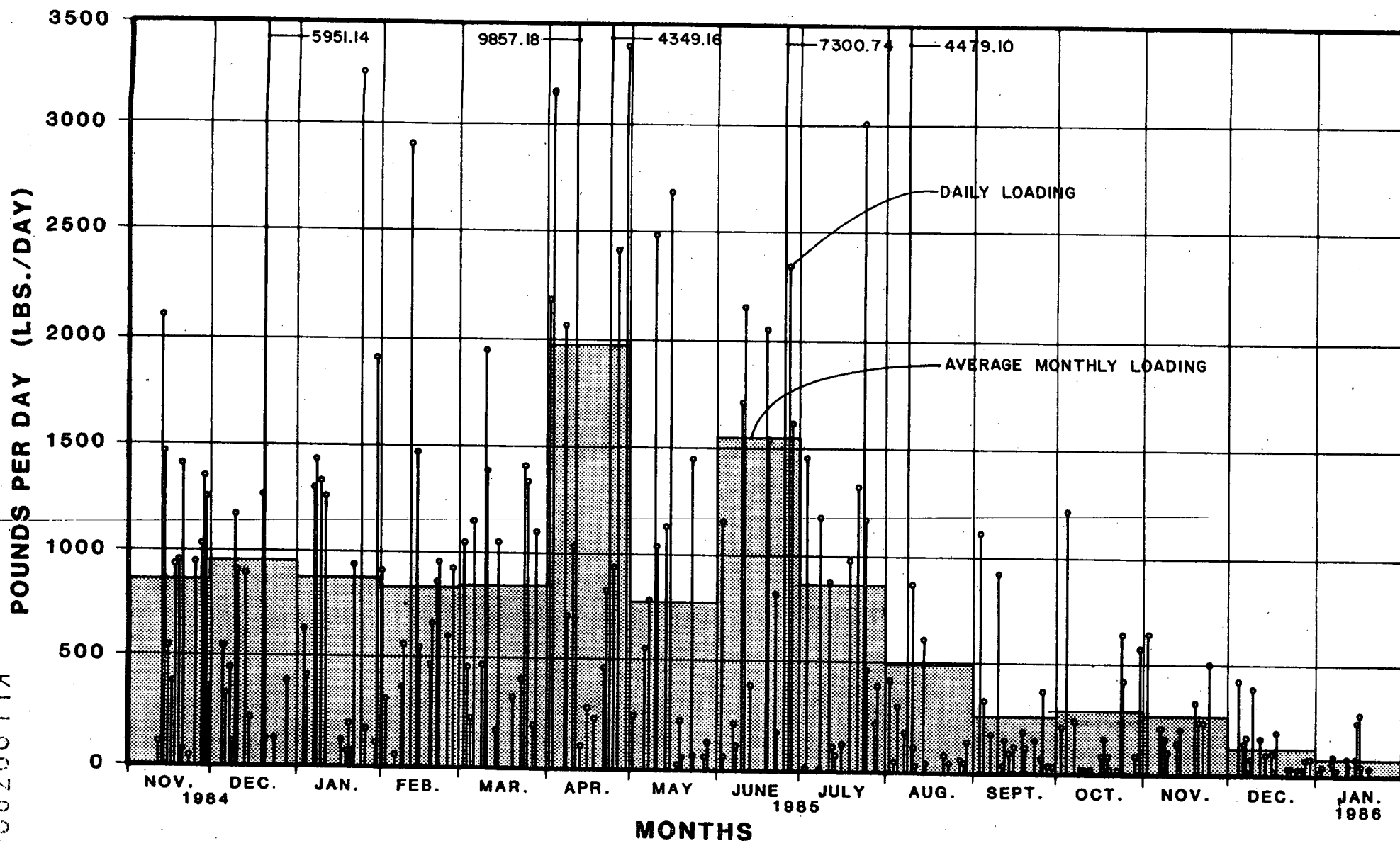
NOTE- VALUES SHOWN AS ZERO WERE BELOW THE DETECTION LIMIT AND ARE ONLY SHOWN TO INDICATE SAMPLING WAS PERFORMED ON THAT DATE.

PASSAIC VALLEY SEWERAGE COMMISSIONERS
NEWARK, NEW JERSEY
ORGANIC PRIORITY POLLUTANT INVESTIGATION
1,1,2,2-TETRACHLOROETHANE LOADING
TREATMENT PLANT INFLUENT

CFM Incorporated
Environmental Engineering Services
Whippany, New Jersey

KLL003820

PLATE E-11

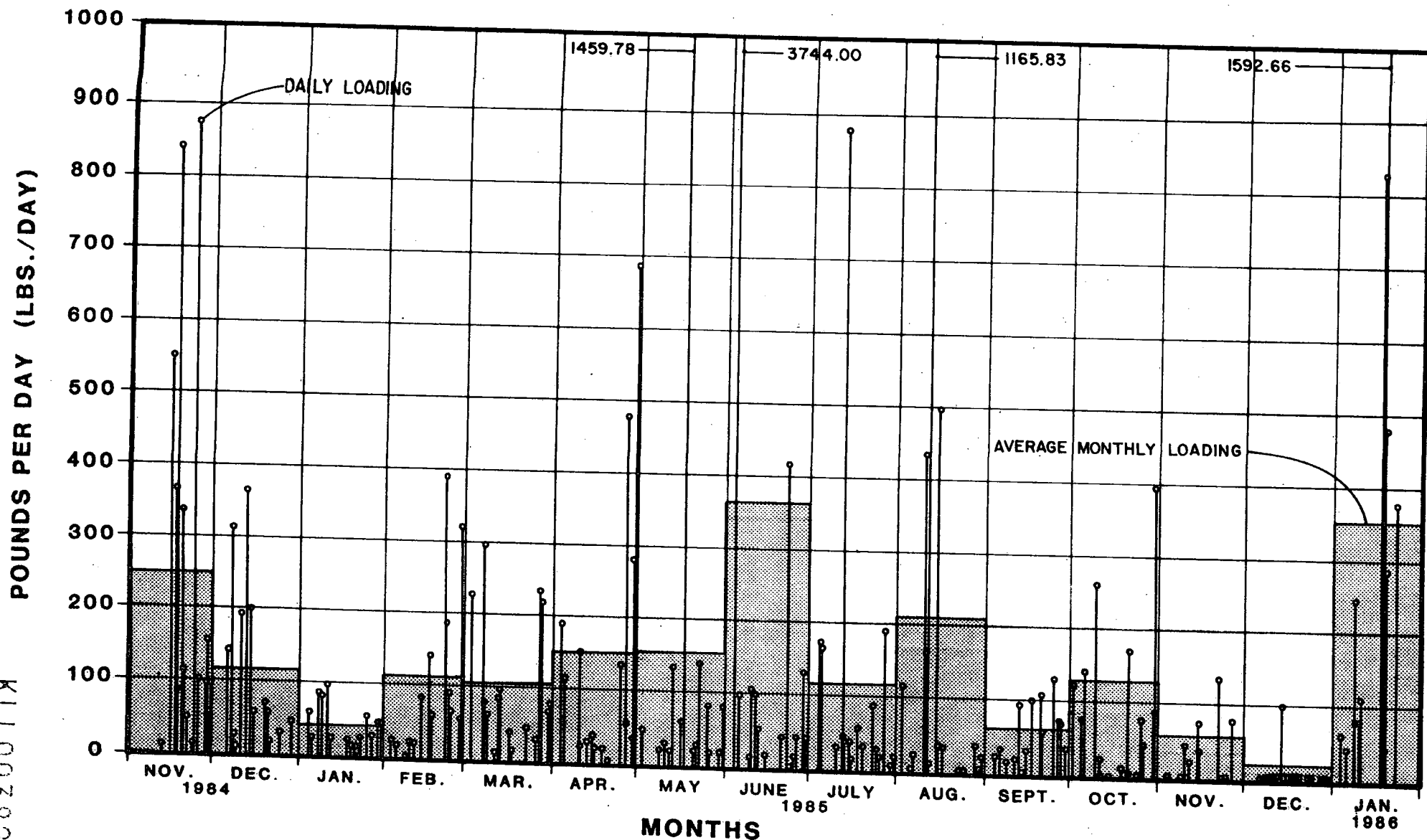


NOTE- VALUES SHOWN AS ZERO WERE BELOW THE DETECTION LIMIT AND ARE ONLY SHOWN TO INDICATE SAMPLING WAS PERFORMED ON THAT DATE.

PASSAIC VALLEY SEWERAGE COMMISSIONERS
NEWARK, NEW JERSEY
ORGANIC PRIORITY POLLUTANT INVESTIGATION
TOLUENE LOADING
TREATMENT PLANT INFLUENT

CFM Incorporated
Environmental Engineering Services
Whippany, New Jersey

KL003821 PLATE E-12

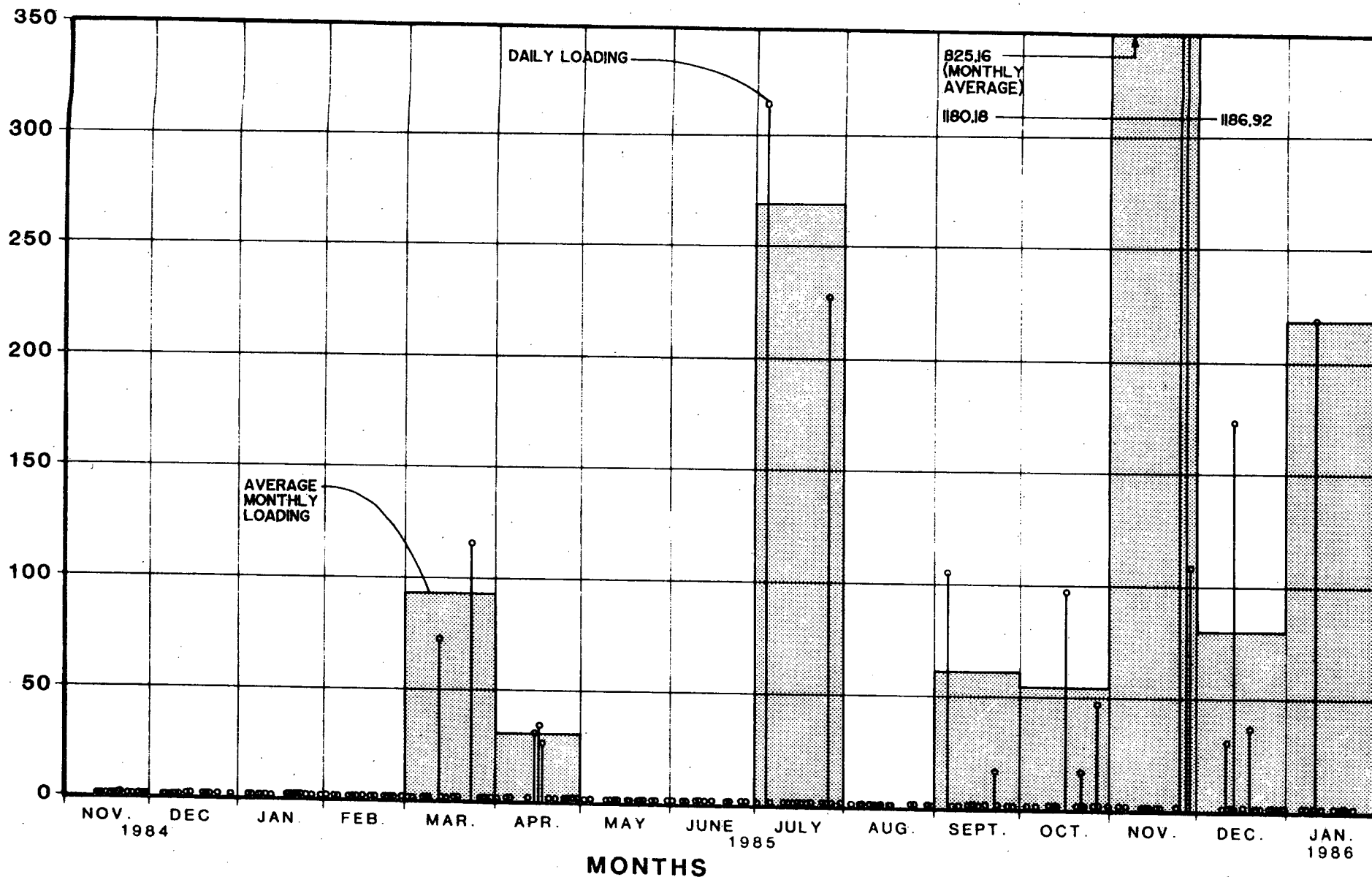


NOTE- VALUES SHOWN AS ZERO WERE BELOW THE DETECTION LIMIT AND ARE ONLY SHOWN TO INDICATE SAMPLING WAS PERFORMED ON THAT DATE.

PASSAIC VALLEY SEWERAGE COMMISSIONERS
NEWARK, NEW JERSEY
ORGANIC PRIORITY POLLUTANT INVESTIGATION
TRICHLOROETHYLENE LOADING
TREATMENT PLANT INFLUENT

CFM Incorporated
Environmental Engineering Services
Whippany, New Jersey

POUNDS PER DAY (LBS./DAY)



PASSAIC VALLEY SEWERAGE COMMISSIONERS
NEWARK, NEW JERSEY
ORGANIC PRIORITY POLLUTANT INVESTIGATION
CHLOROPHENOL LOADING
TREATMENT PLANT INFLUENT

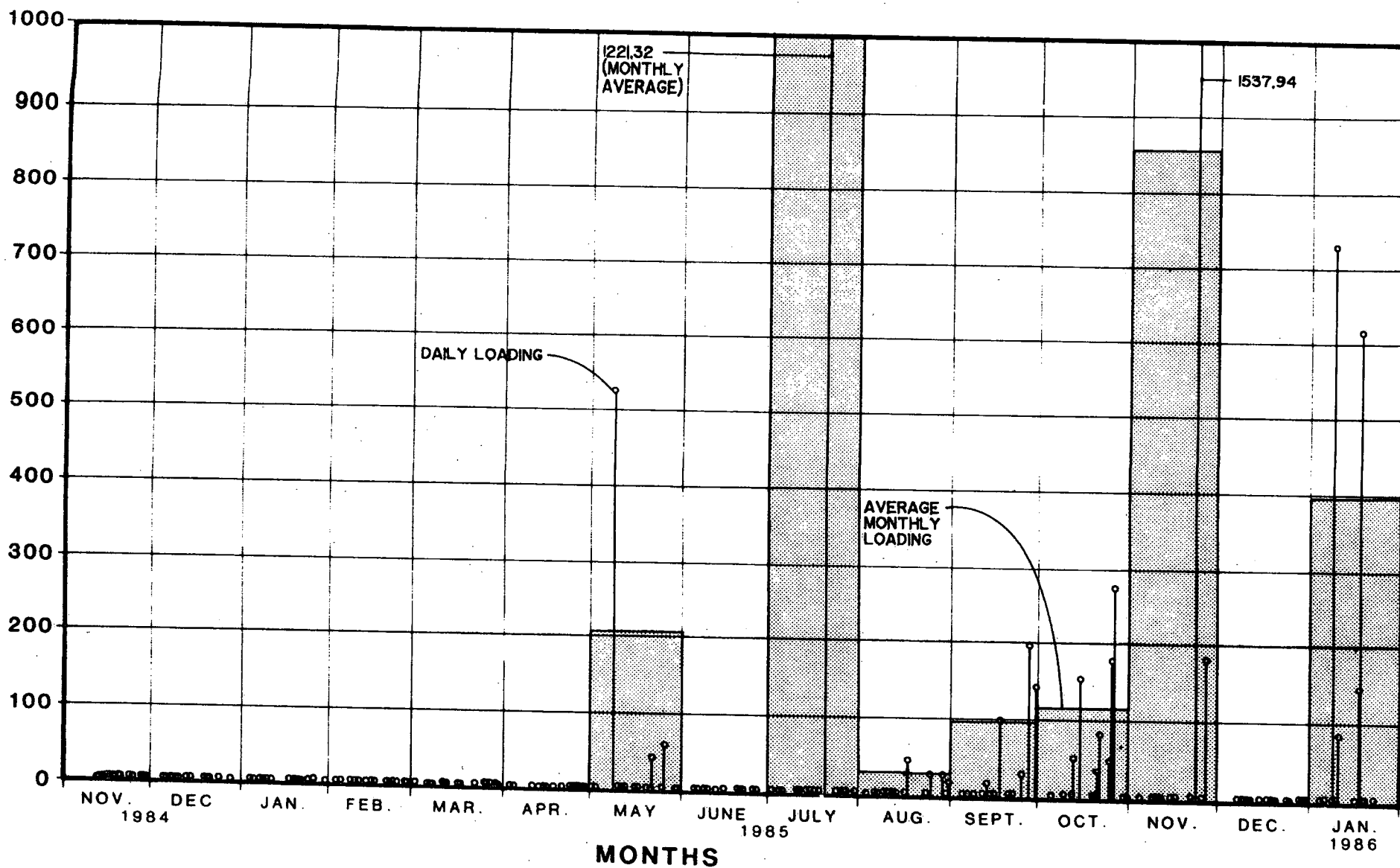
CFM Incorporated
Environmental Engineering Services
Whippany, New Jersey

NOTE- VALUES SHOWN AS ZERO WERE BELOW THE DETECTION LIMIT AND ARE ONLY SHOWN TO INDICATE SAMPLING WAS PERFORMED ON THAT DATE.

POUNDS PER DAY (LBS./DAY)

KL0005823

PLATE E-14



NOTE- VALUES SHOWN AS ZERO WERE BELOW THE DETECTION LIMIT AND ARE ONLY SHOWN TO INDICATE SAMPLING WAS PERFORMED ON THAT DATE.

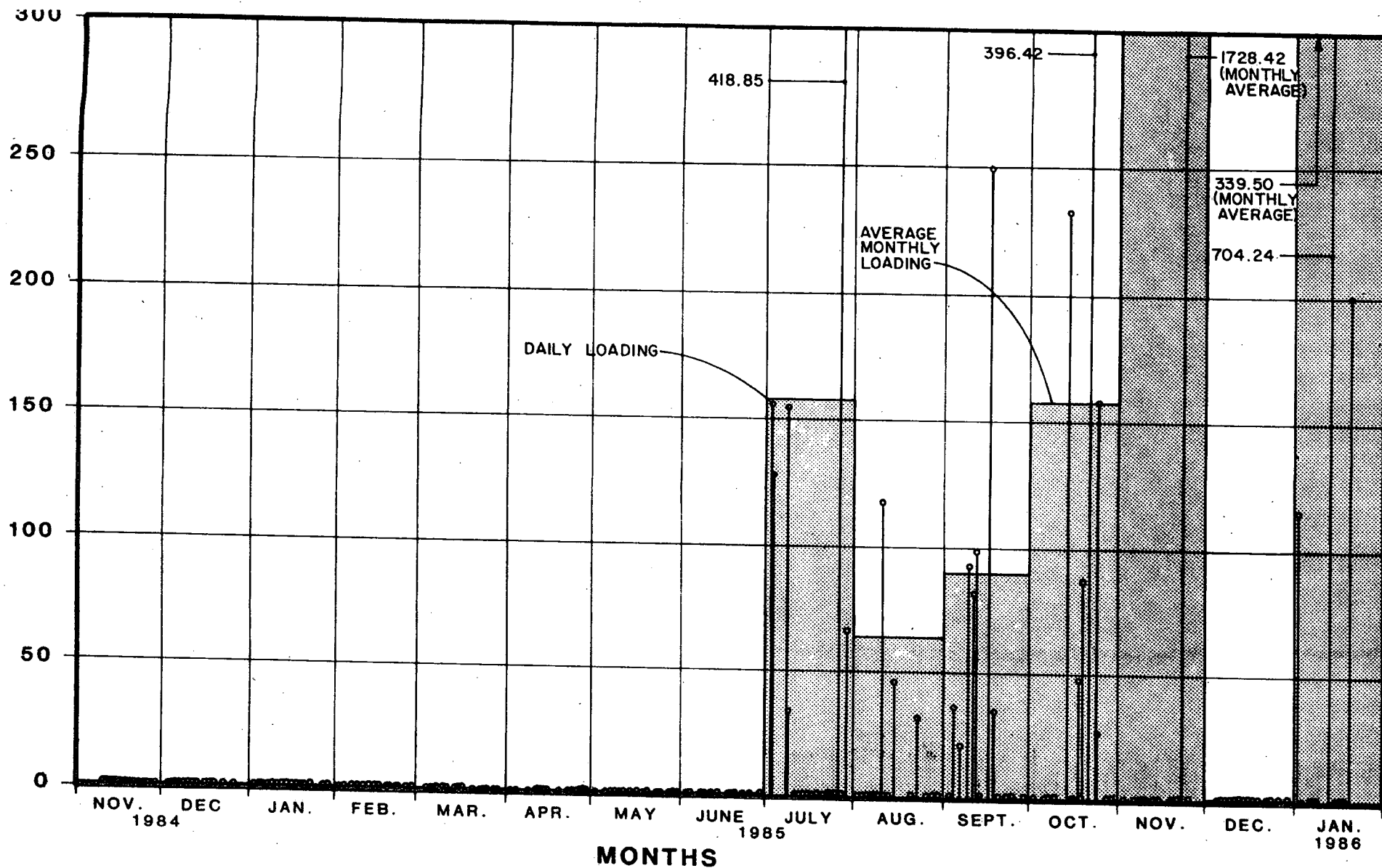
PASSAIC VALLEY SEWERAGE COMMISSIONERS
NEWARK, NEW JERSEY
ORGANIC PRIORITY POLLUTANT INVESTIGATION
2,4-DICHLOROPHENOL LOADING
TREATMENT PLANT INFLUENT

CFM Incorporated
Environmental Engineering Services
Whippany, New Jersey

POUNDS PER DAY (LBS./DAY)

KL003824

PLATE E-15



PASSAIC VALLEY SEWERAGE COMMISSIONERS
NEWARK, NEW JERSEY
ORGANIC PRIORITY POLLUTANT INVESTIGATION
2,4-DIMETHYLPHENOL LOADING
TREATMENT PLANT INFLUENT

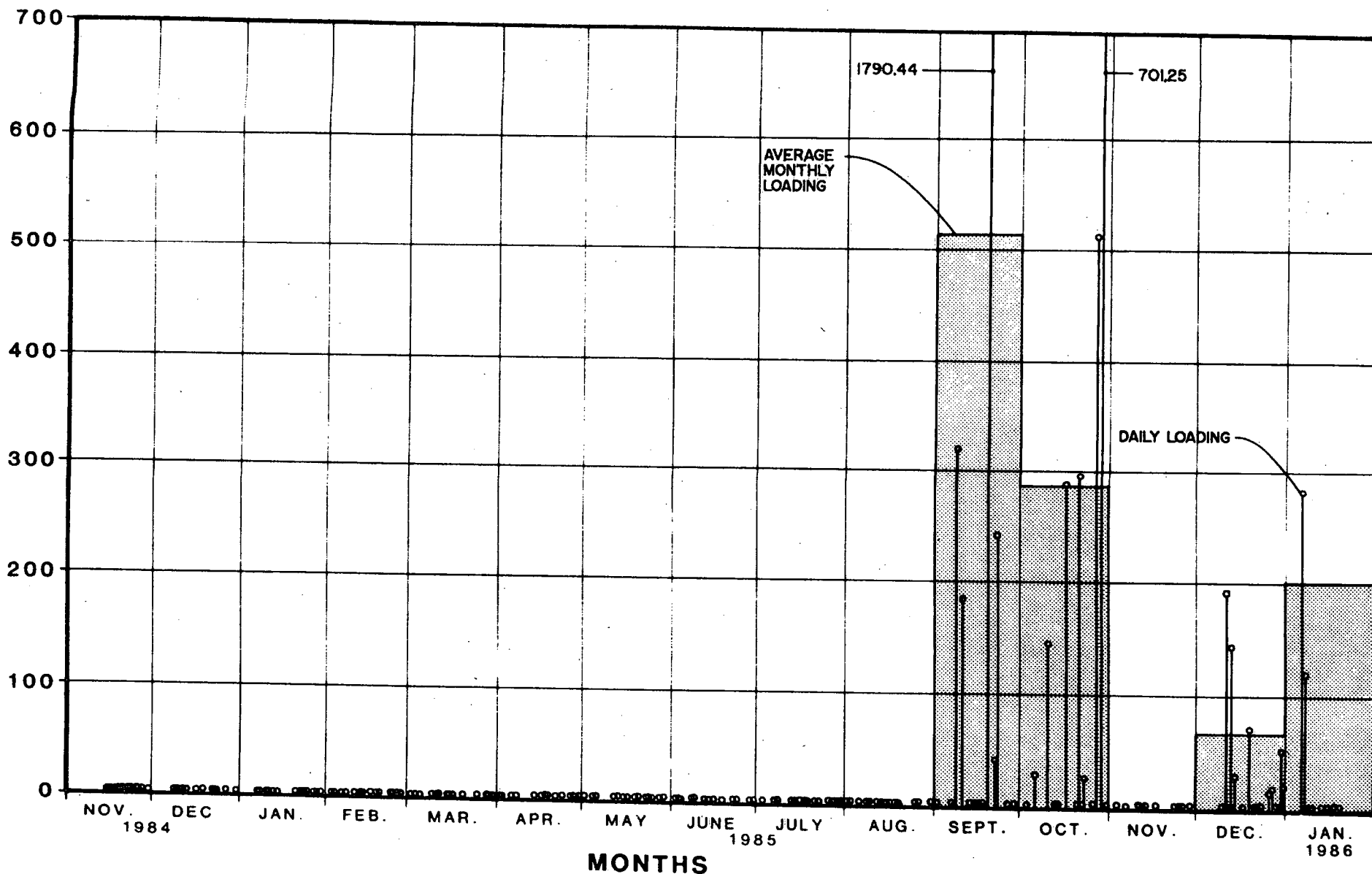
CFM Incorporated
Environmental Engineering Services
Whippany, New Jersey

NOTE- VALUES SHOWN AS ZERO WERE BELOW THE
DETECTION LIMIT AND ARE ONLY SHOWN TO
INDICATE SAMPLING WAS PERFORMED ON
THAT DATE.

KLLO03825

PLATE E-16

POUNDS PER DAY (LBS./DAY)



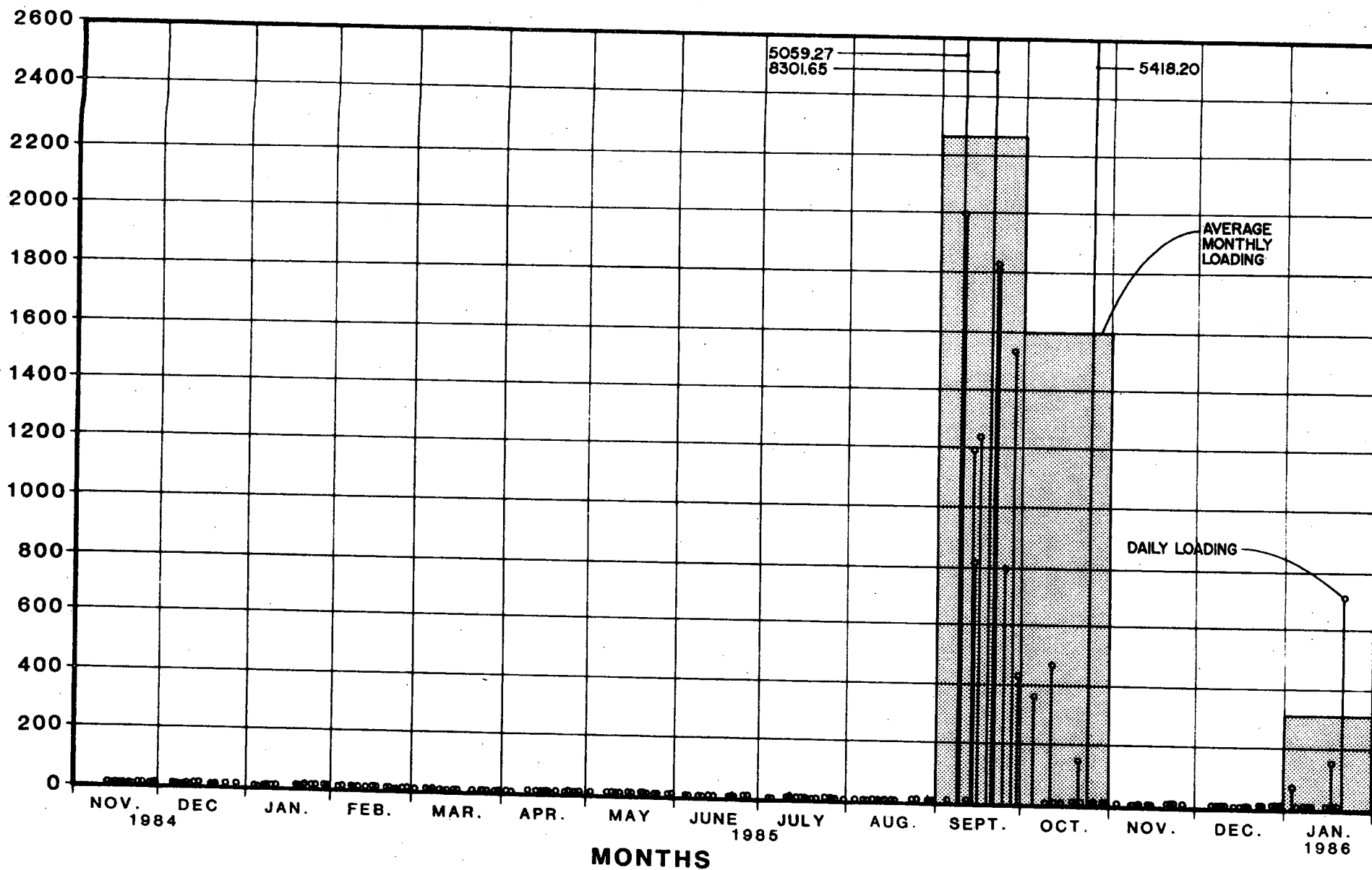
NOTE - VALUES SHOWN AS ZERO WERE BELOW THE DETECTION LIMIT AND ARE ONLY SHOWN TO INDICATE SAMPLING WAS PERFORMED ON THAT DATE.

PASSAIC VALLEY SEWERAGE COMMISSIONERS
NEWARK, NEW JERSEY
ORGANIC PRIORITY POLLUTANT INVESTIGATION
4,6-DINITRO-O-CRESOL LOADING
TREATMENT PLANT INFLUENT

CFM Incorporated
Environmental Engineering Services
Whippany, New Jersey

POUNDS PER DAY (LBS./DAY)

KL003826 PLATE E-17



NOTE- VALUES SHOWN AS ZERO WERE BELOW THE DETECTION LIMIT AND ARE ONLY SHOWN TO INDICATE SAMPLING WAS PERFORMED ON THAT DATE.

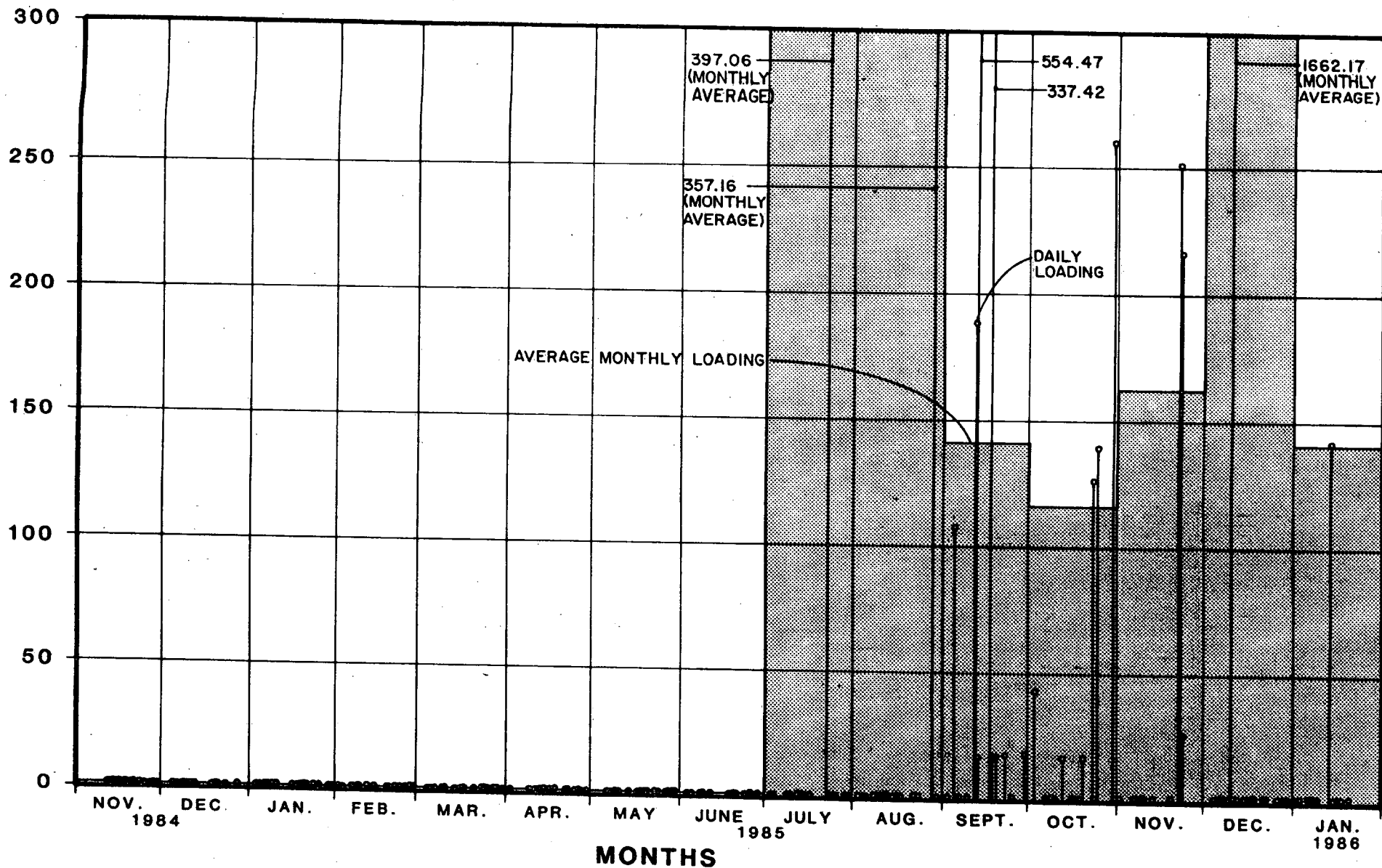
PASSAIC VALLEY SEWERAGE COMMISSIONERS
NEWARK, NEW JERSEY
ORGANIC PRIORITY POLLUTANT INVESTIGATION
2,4-DINITROPHENOL LOADING
TREATMENT PLANT INFLUENT

CFM Incorporated
Environmental Engineering Services
Whippany, New Jersey

POUNDS PER DAY (LBS./DAY)

KLL003827

PLATE E-18



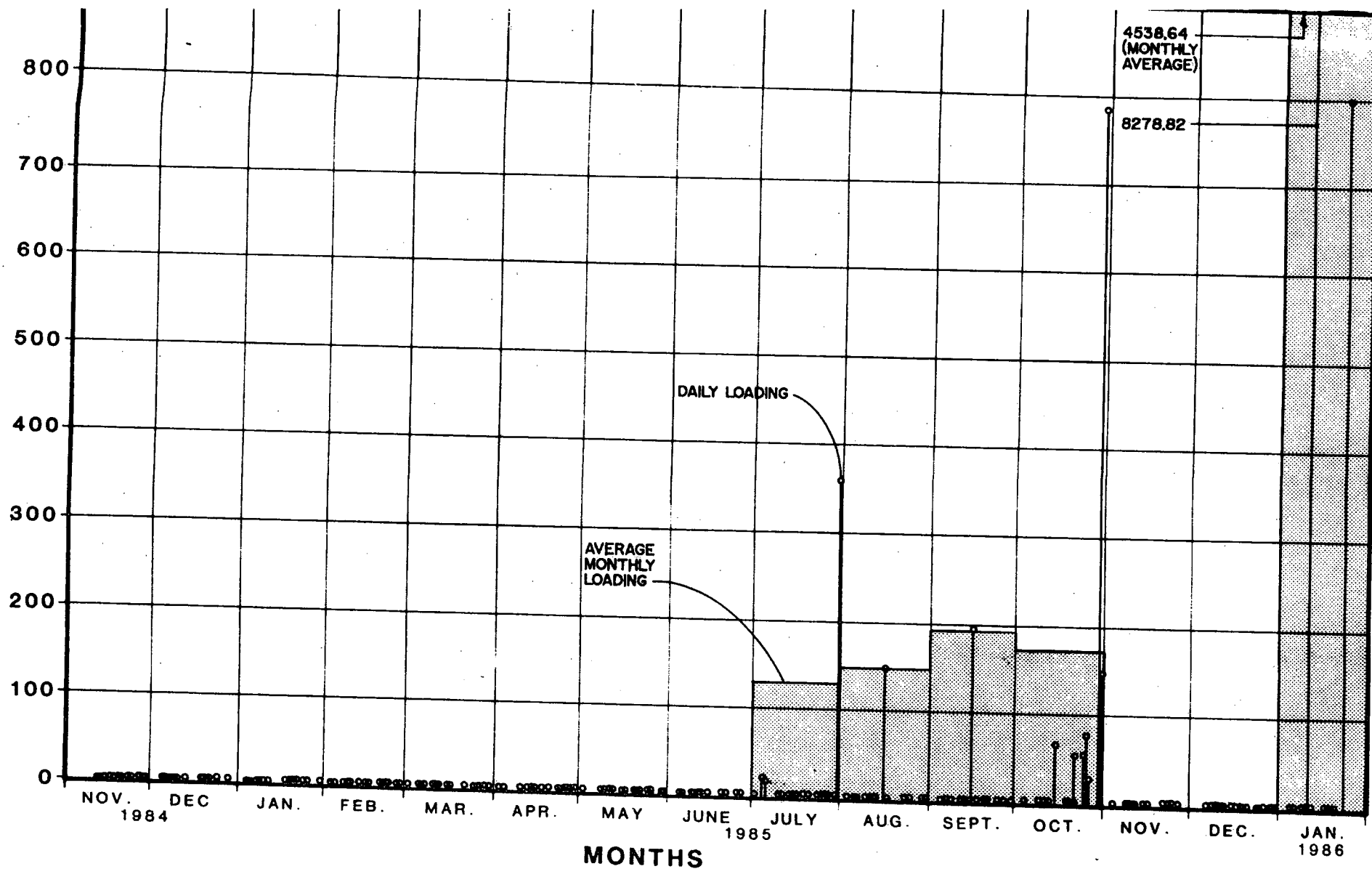
PASSAIC VALLEY SEWERAGE COMMISSIONERS
NEWARK, NEW JERSEY
ORGANIC PRIORITY POLLUTANT INVESTIGATION
2-NITROPHENOL LOADING
TREATMENT PLANT INFLUENT

CFM Incorporated
Environmental Engineering Services
Whippany, New Jersey

NOTE- VALUES SHOWN AS ZERO WERE BELOW THE DETECTION LIMIT AND ARE ONLY SHOWN TO INDICATE SAMPLING WAS PERFORMED ON THAT DATE.

KL003828 PLATE E-19

POUNDS PER DAY (LBS./DAY)

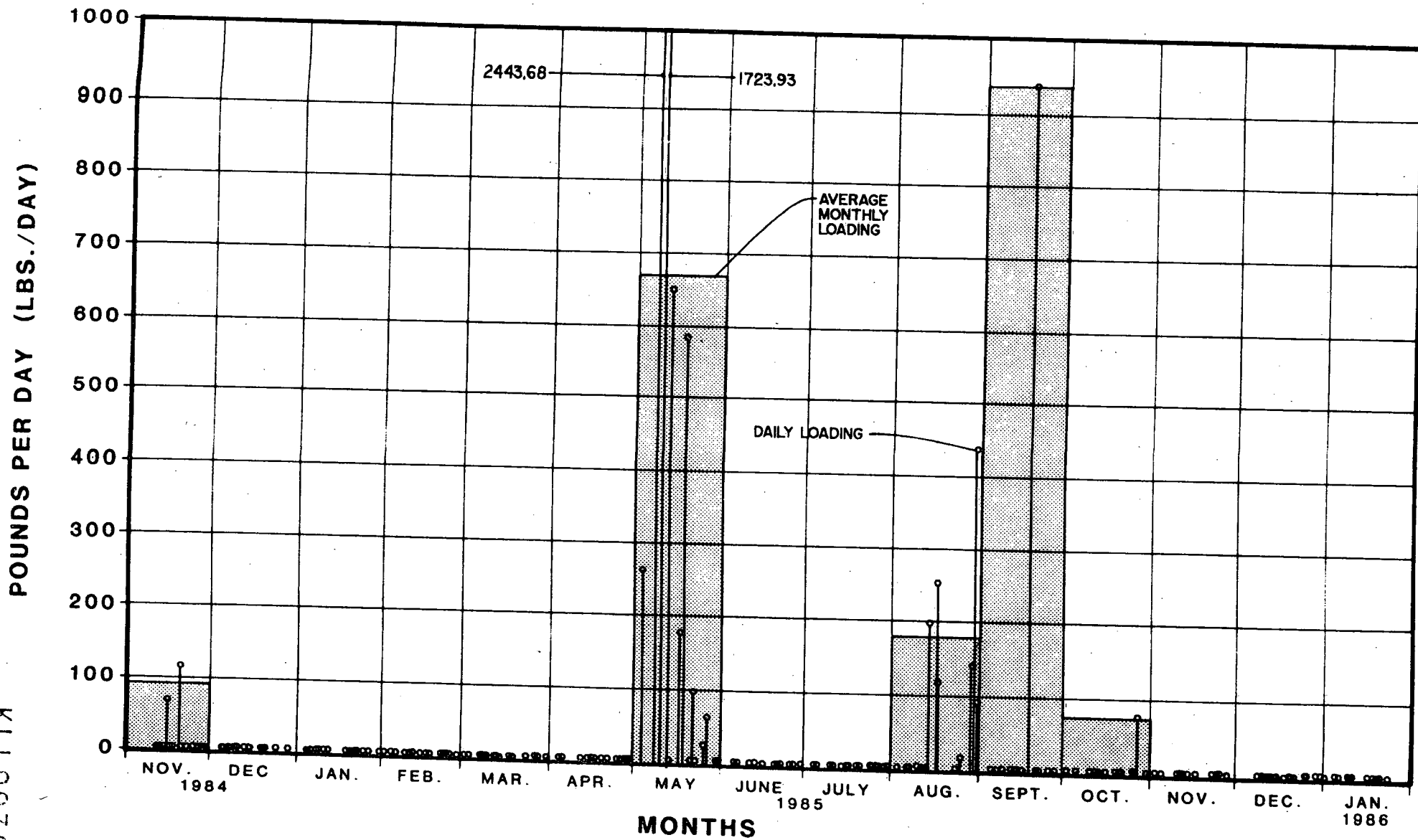


NOTE- VALUES SHOWN AS ZERO WERE BELOW THE
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INDICATE SAMPLING WAS PERFORMED ON
THAT DATE.

PASSAIC VALLEY SEWERAGE COMMISSIONERS
NEWARK, NEW JERSEY
ORGANIC PRIORITY POLLUTANT INVESTIGATION
p-CHLORO-M-CRESOL LOADING
TREATMENT PLANT INFLUENT

CFM Incorporated
Environmental Engineering Services
Whippany, New Jersey

KL003829PLATE E-20



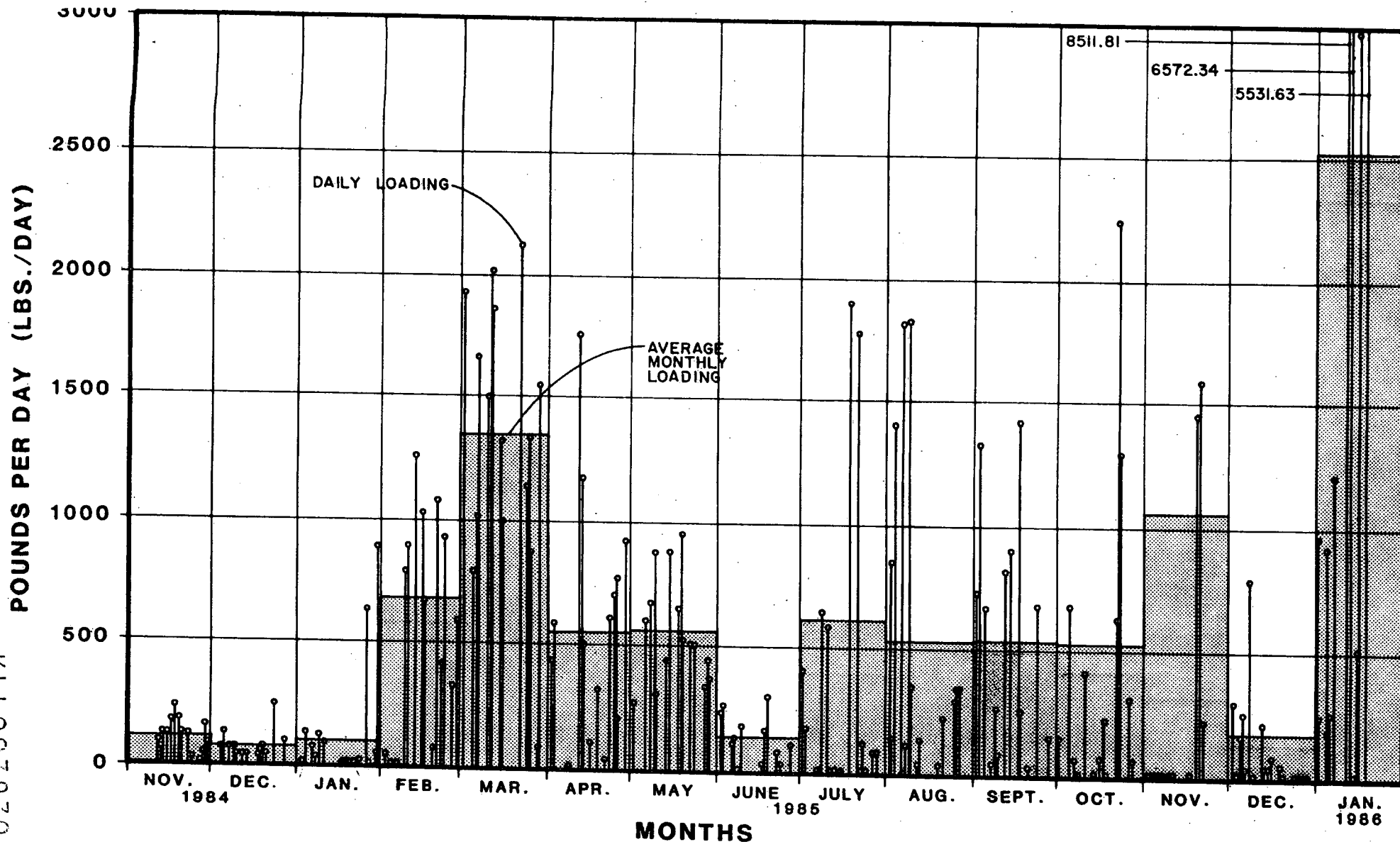
NOTE- VALUES SHOWN AS ZERO WERE BELOW THE DETECTION LIMIT AND ARE ONLY SHOWN TO INDICATE SAMPLING WAS PERFORMED ON THAT DATE.

PASSAIC VALLEY SEWERAGE COMMISSIONERS
NEWARK, NEW JERSEY
ORGANIC PRIORITY POLLUTANT INVESTIGATION
PENTACHLOROPHENOL LOADING
TREATMENT PLANT INFLUENT

CFM Incorporated
Environmental Engineering Services
Whippany, New Jersey

KL0003830

PLATE E-21



NOTE- VALUES SHOWN AS ZERO WERE BELOW THE DETECTION LIMIT AND ARE ONLY SHOWN TO INDICATE SAMPLING WAS PERFORMED ON THAT DATE.

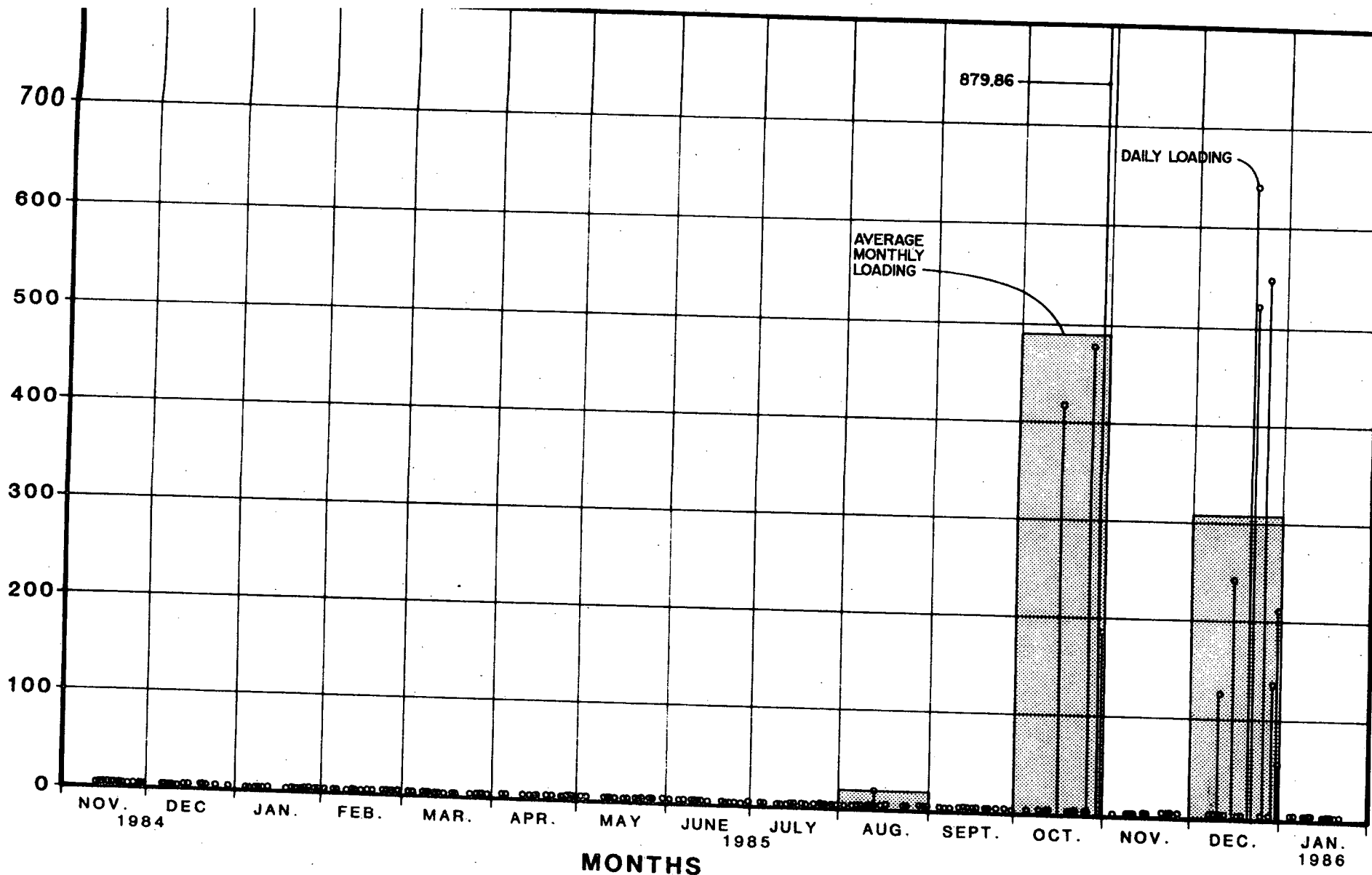
PASSAIC VALLEY SEWERAGE COMMISSIONERS
NEWARK, NEW JERSEY
ORGANIC PRIORITY POLLUTANT INVESTIGATION
PHENOL LOADING
TREATMENT PLANT INFLUENT

CFM Incorporated
Environmental Engineering Services
Whippany, New Jersey

KLL003831

PLATE E-22

POUNDS PER DAY (LBS./DAY)



NOTE- VALUES SHOWN AS ZERO WERE BELOW THE DETECTION LIMIT AND ARE ONLY SHOWN TO INDICATE SAMPLING WAS PERFORMED ON THAT DATE.

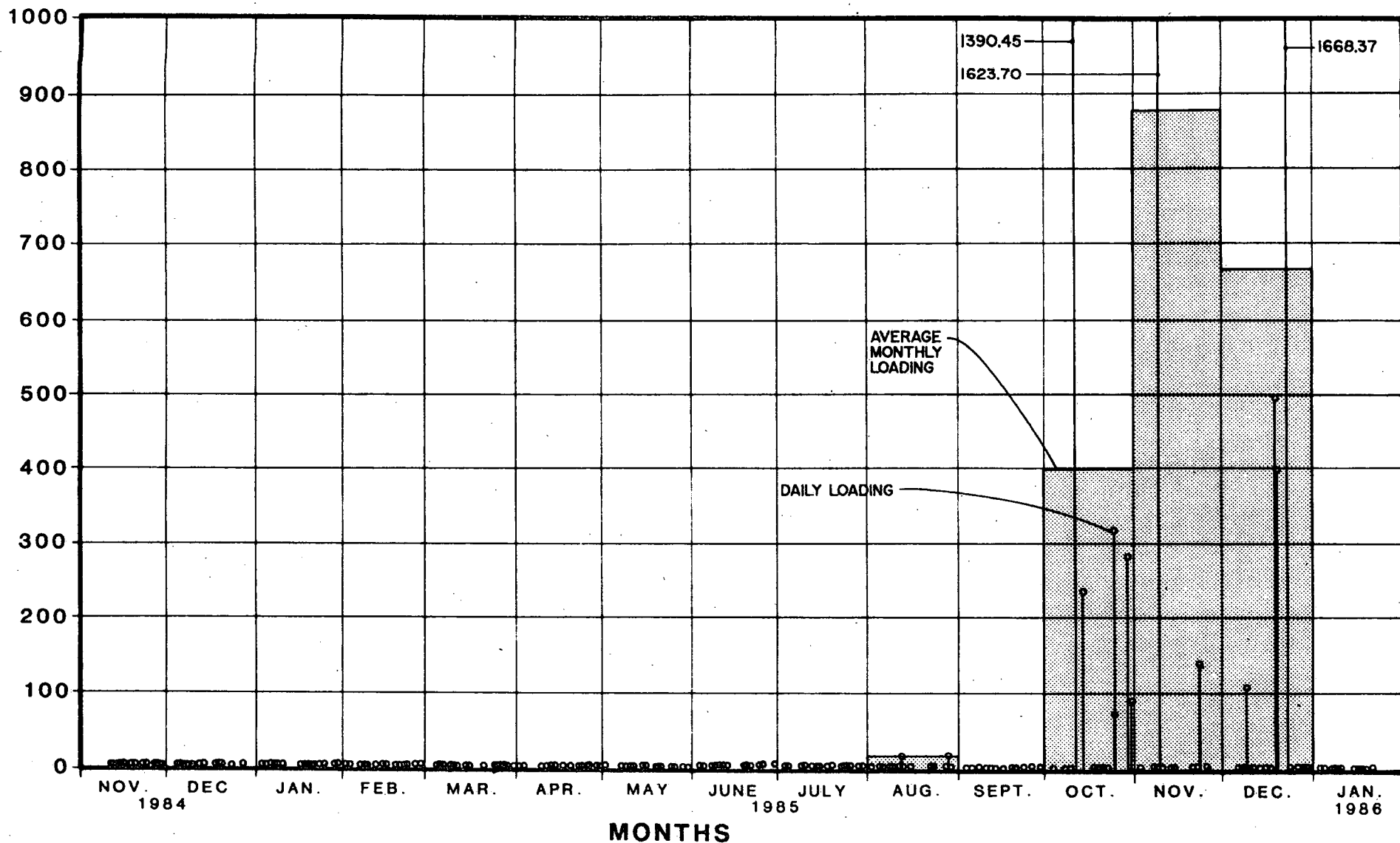
PASSAIC VALLEY SEWERAGE COMMISSIONERS
NEWARK, NEW JERSEY
ORGANIC PRIORITY POLLUTANT INVESTIGATION
BENZO (a) PYRENE LOADING
TREATMENT PLANT INFLUENT

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Environmental Engineering Services
Whippany, New Jersey

POUNDS PER DAY (LBS./DAY)

KLL003832

PLATE E-23



PASSAIC VALLEY SEWERAGE COMMISSIONERS
NEWARK, NEW JERSEY
ORGANIC PRIORITY POLLUTANT INVESTIGATION
BENZO (k) FLUORANTHENE LOADING
TREATMENT PLANT INFLUENT

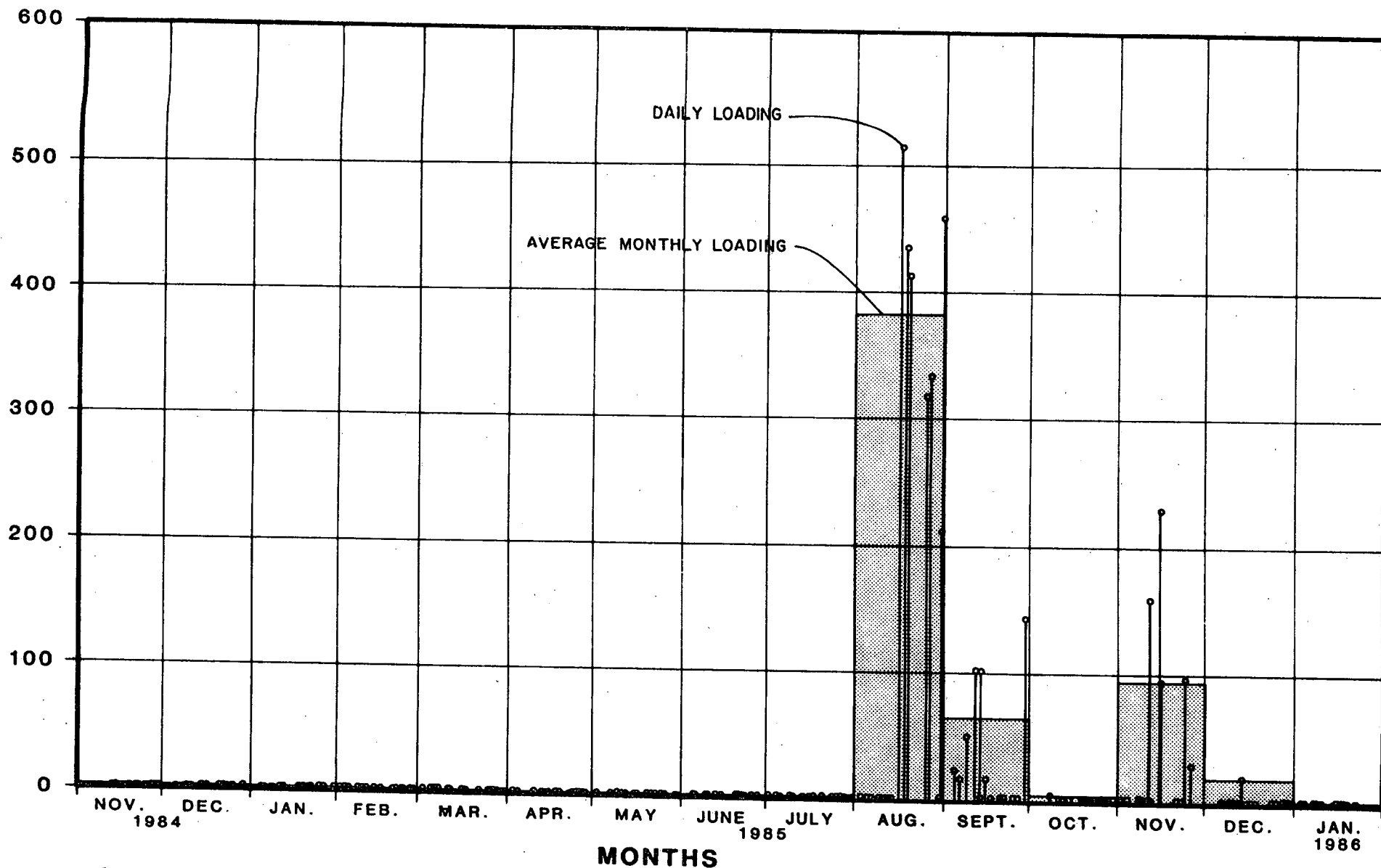
NOTE- VALUES SHOWN AS ZERO WERE BELOW THE DETECTION LIMIT AND ARE ONLY SHOWN TO INDICATE SAMPLING WAS PERFORMED ON THAT DATE.

CFM Incorporated
Environmental Engineering Services
Whippany, New Jersey

POUNDS PER DAY (LBS./DAY)

KLL003835

PLATE E-24



PASSAIC VALLEY SEWERAGE COMMISSIONERS
NEWARK, NEW JERSEY
ORGANIC PRIORITY POLLUTANT INVESTIGATION
BUTYLBENZYL PHTHALATE LOADING
TREATMENT PLANT INFLUENT

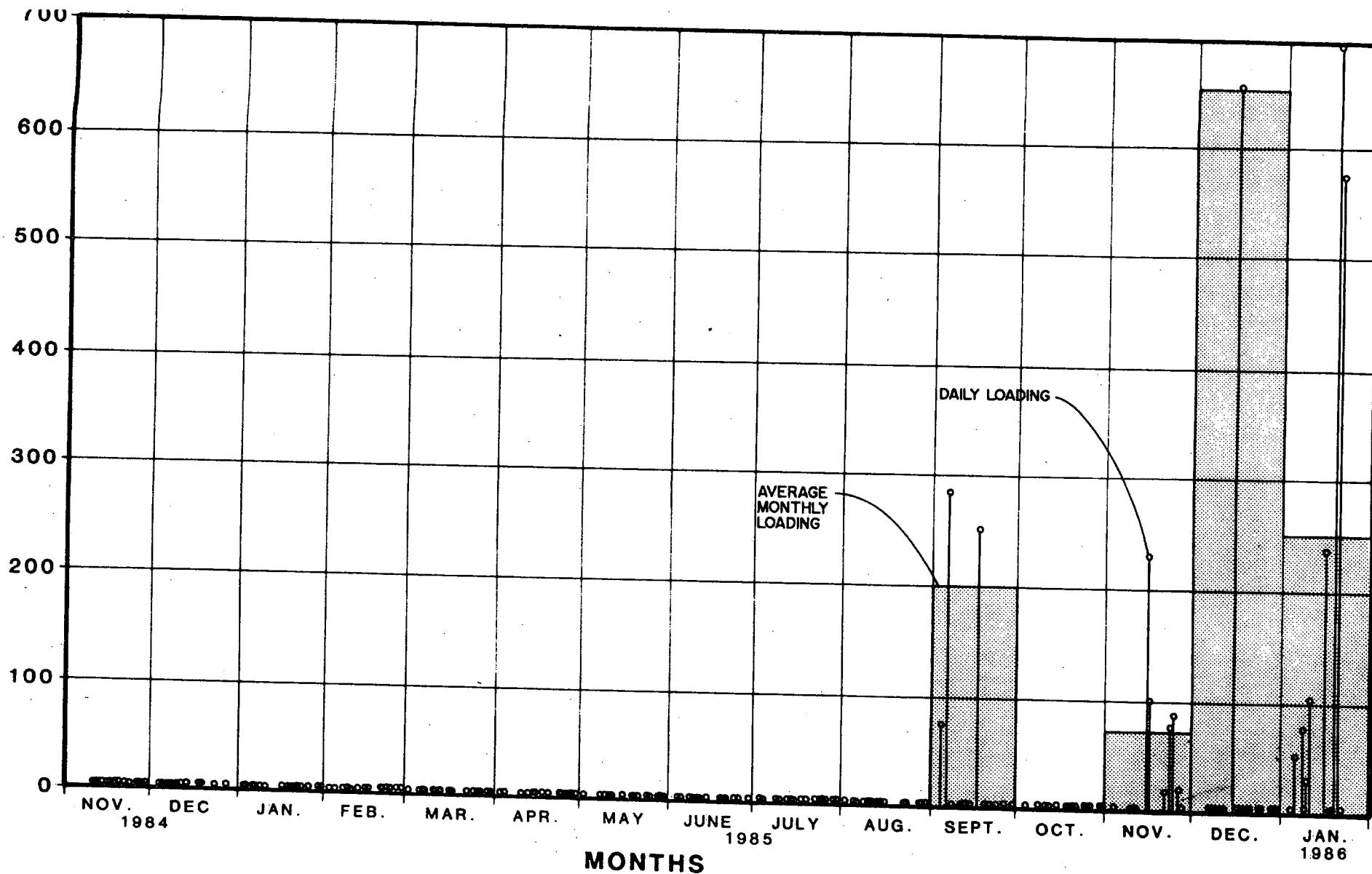
CFM Incorporated
Environmental Engineering Services
Whippany, New Jersey

NOTE- VALUES SHOWN AS ZERO WERE BELOW THE
DETECTION LIMIT AND ARE ONLY SHOWN TO
INDICATE SAMPLING WAS PERFORMED ON
THAT DATE.

POUNDS PER DAY (LBS./DAY)

KL003834

PLATE E-25

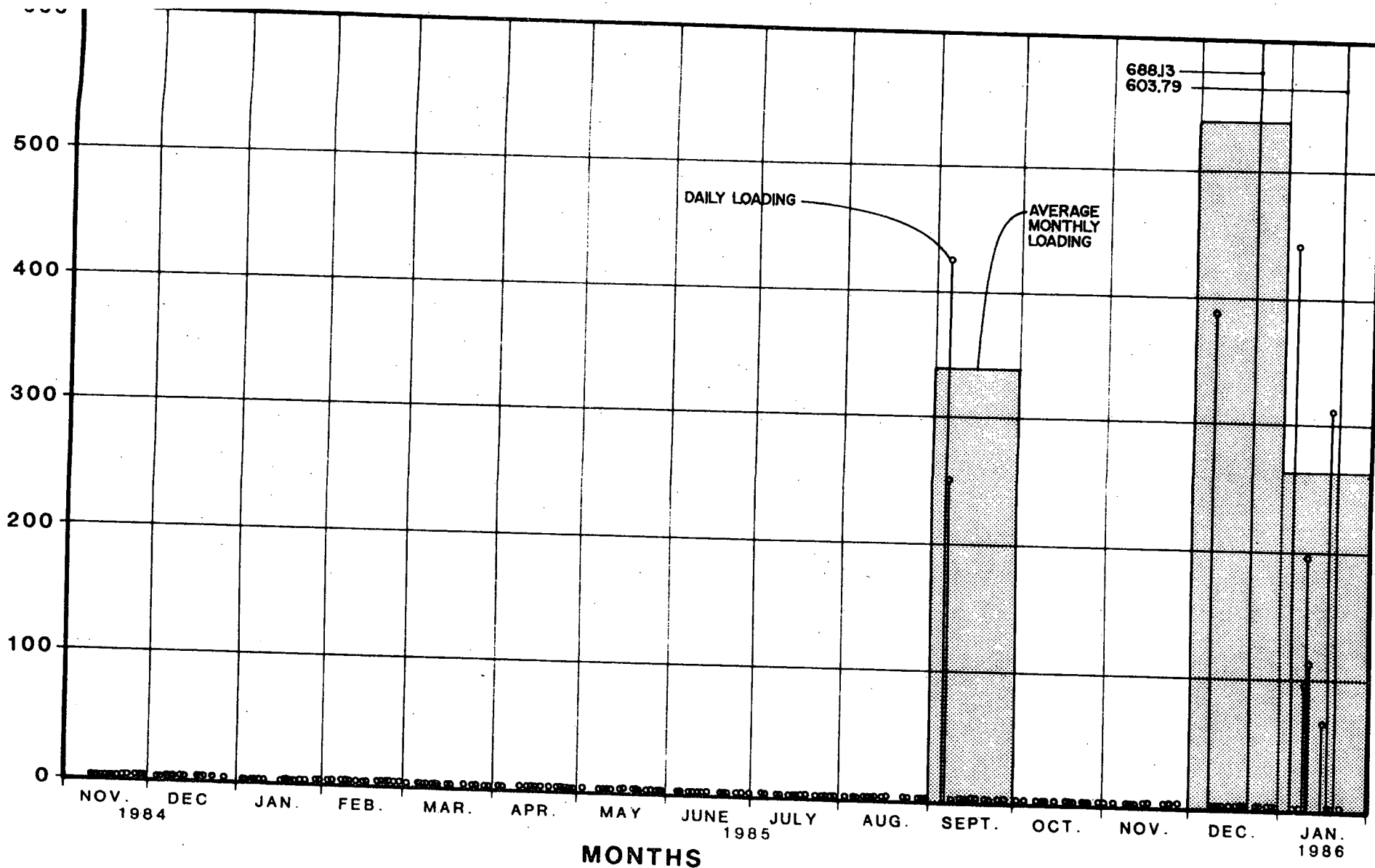


NOTE- VALUES SHOWN AS ZERO WERE BELOW THE DETECTION LIMIT AND ARE ONLY SHOWN TO INDICATE SAMPLING WAS PERFORMED ON THAT DATE.

PASSAIC VALLEY SEWERAGE COMMISSIONERS
NEWARK, NEW JERSEY
ORGANIC PRIORITY POLLUTANT INVESTIGATION
DIETHYL PHTHALATE LOADING
TREATMENT PLANT INFLUENT

CFM Incorporated
Environmental Engineering Services
Whippany, New Jersey

POUNDS PER DAY (LBS./DAY)



NOTE- VALUES SHOWN AS ZERO WERE BELOW THE DETECTION LIMIT AND ARE ONLY SHOWN TO INDICATE THAT SAMPLING WAS PERFORMED ON THAT DATE

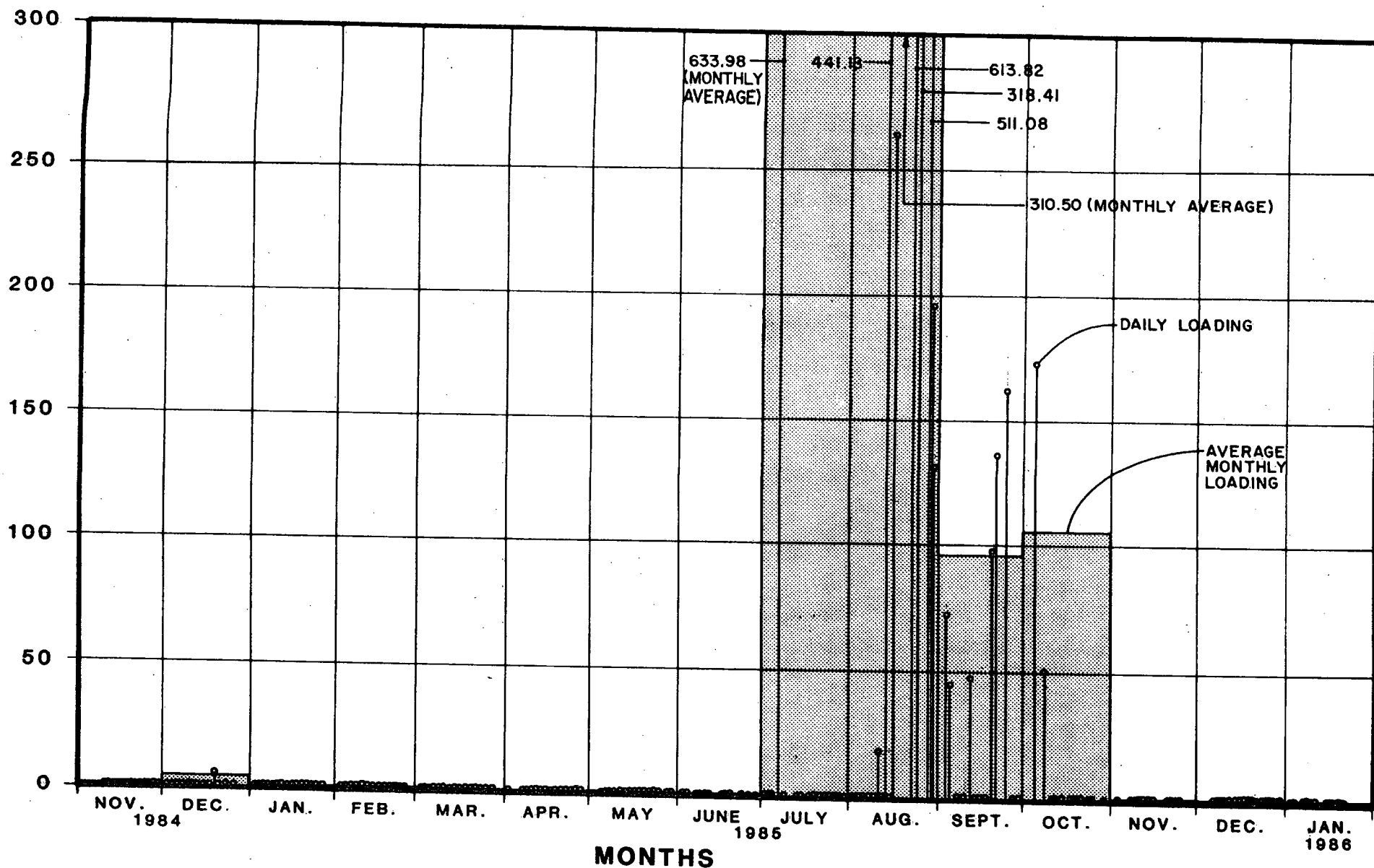
PASSAIC VALLEY SEWERAGE COMMISSIONERS
NEWARK, NEW JERSEY
ORGANIC PRIORITY POLLUTANT INVESTIGATION
DIMETHYL PHTHALATE LOADING
TREATMENT PLANT INFLUENT

CFM Incorporated
Environmental Engineering Services
Whippany, New Jersey

POUNDS PER DAY (LBS./DAY)

KLL003836

PLATE E-27



NOTE- VALUES SHOWN AS ZERO WERE BELOW THE DETECTION LIMIT AND ARE ONLY SHOWN TO INDICATE SAMPLING WAS PERFORMED ON THAT DATE.

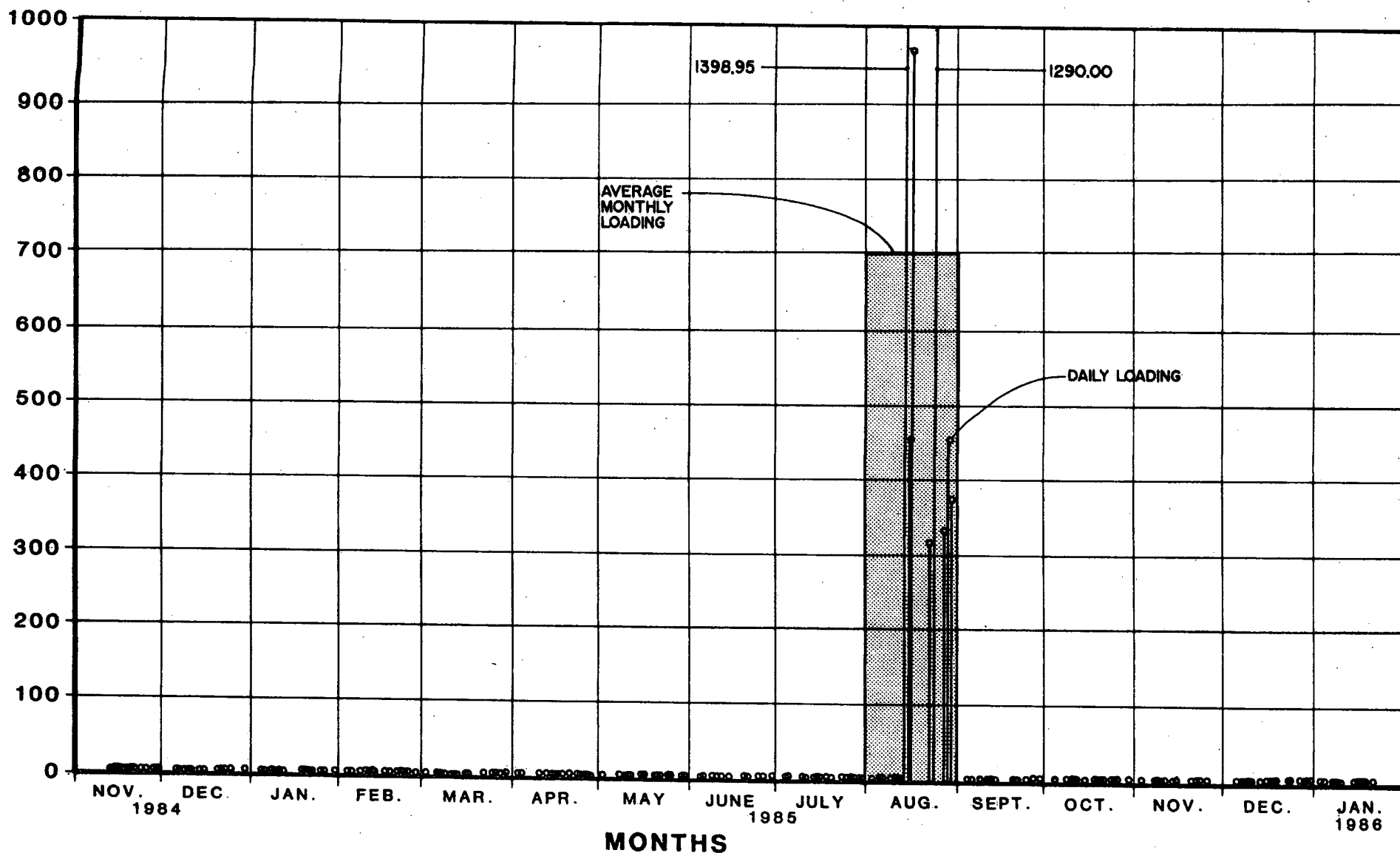
PASSAIC VALLEY SEWERAGE COMMISSIONERS
NEWARK, NEW JERSEY
ORGANIC PRIORITY POLLUTANT INVESTIGATION
DI-N-BUTYL PHTHALATE LOADING
TREATMENT PLANT INFLUENT

CFM Incorporated
Environmental Engineering Services
Whippany, New Jersey

POUNDS PER DAY (LBS./DAY)

KLL003837

PLATE E-28



PASSAIC VALLEY SEWERAGE COMMISSIONERS
NEWARK, NEW JERSEY
ORGANIC PRIORITY POLLUTANT INVESTIGATION
2,4-DINITROTOLUENE LOADING
TREATMENT PLANT INFLUENT

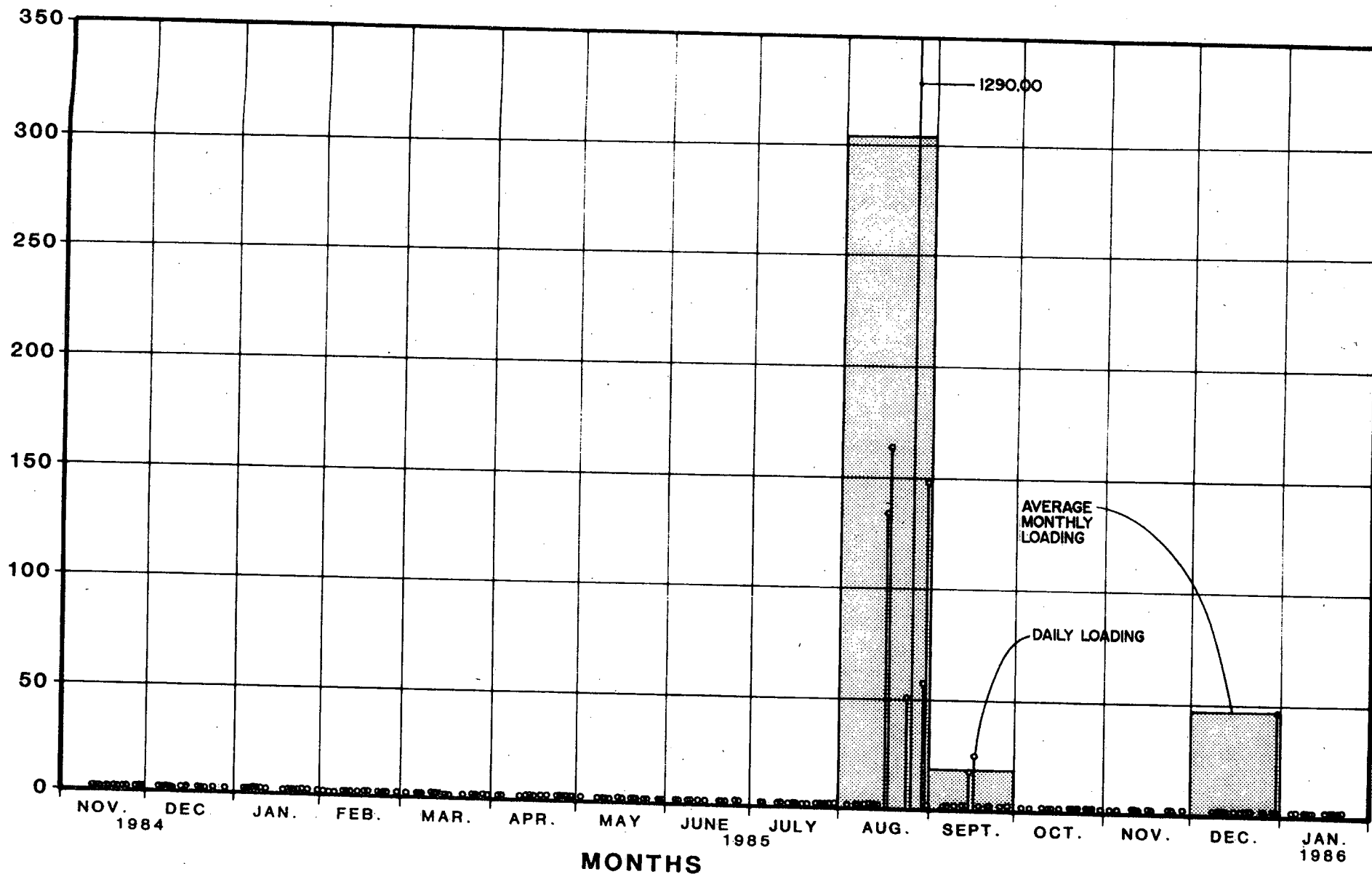
CFM Incorporated
Environmental Engineering Services
Whippany, New Jersey

NOTE- VALUES SHOWN AS ZERO WERE BELOW THE DETECTION LIMIT AND ARE ONLY SHOWN TO INDICATE SAMPLING WAS PERFORMED ON THAT DATE.

POUNDS PER DAY (LBS./DAY)

KL003038

PLATE E-29



NOTE- VALUES SHOWN AS ZERO WERE BELOW THE DETECTION LIMIT AND ARE ONLY SHOWN TO INDICATE SAMPLING WAS PERFORMED ON THAT DATE.

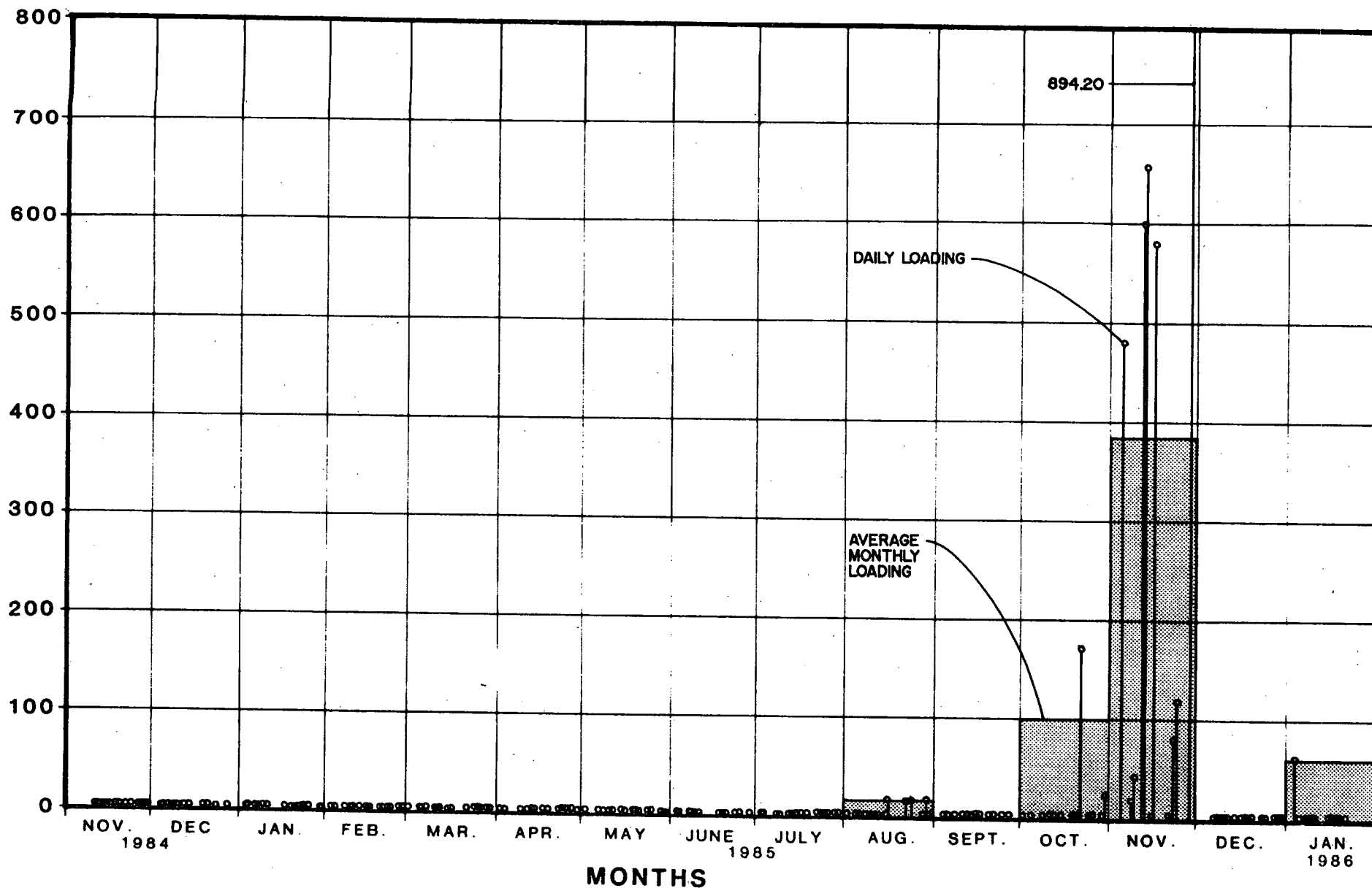
PASSAIC VALLEY SEWERAGE COMMISSIONERS
NEWARK, NEW JERSEY
ORGANIC PRIORITY POLLUTANT INVESTIGATION
2,6-DINITROTOLUENE LOADING
TREATMENT PLANT INFLUENT

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Environmental Engineering Services
Whippany, New Jersey

POUNDS PER DAY (LBS./DAY)

KLLO03839

PLATE E-30

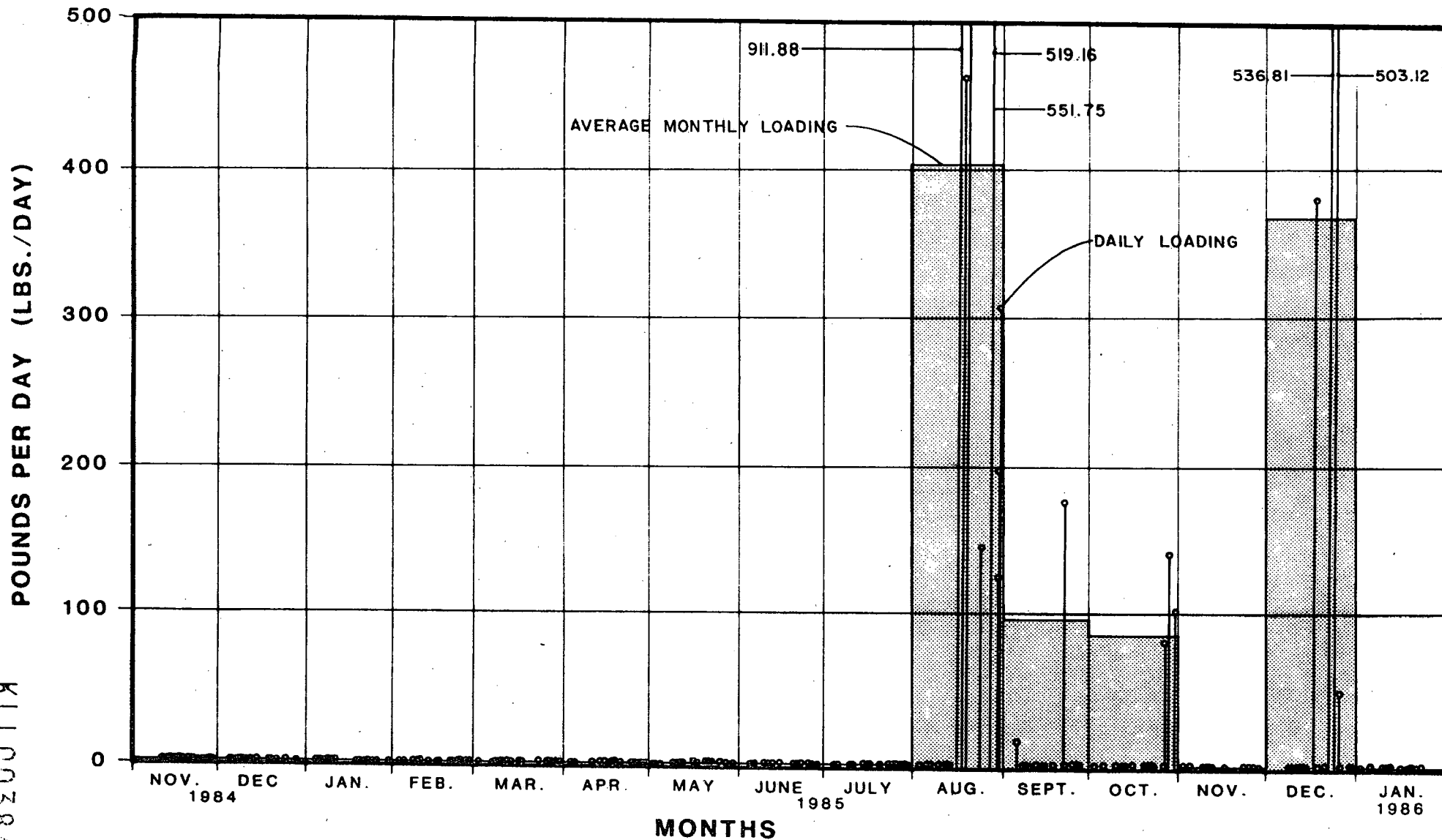


NOTE- VALUES SHOWN AS ZERO WERE BELOW THE DETECTION LIMIT AND ARE ONLY SHOWN TO INDICATE SAMPLING WAS PERFORMED ON THAT DATE.

PASSAIC VALLEY SEWERAGE COMMISSIONERS
NEWARK, NEW JERSEY
ORGANIC PRIORITY POLLUTANT INVESTIGATION
HEXACHLOROETHANE LOADING
TREATMENT PLANT INFLUENT

CFM Incorporated
Environmental Engineering Services

KL003840 PLATE E-31



PASSAIC VALLEY SEWERAGE COMMISSIONERS
NEWARK, NEW JERSEY
ORGANIC PRIORITY POLLUTANT INVESTIGATION

ISOPHORONE LOADING

TREATMENT PLANT INFLUENT

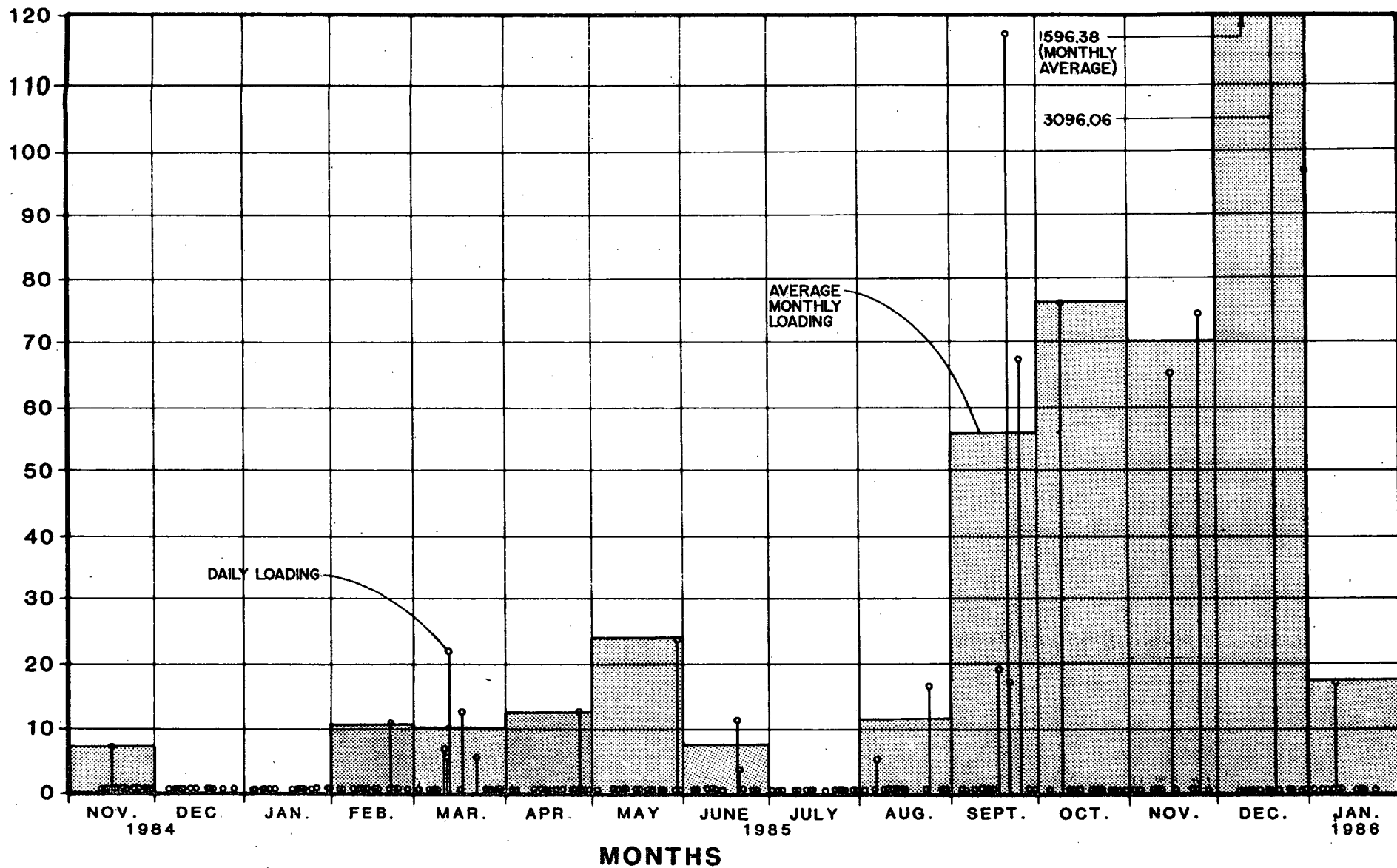
CFM Incorporated
Environmental Engineering Services
Whippany, New Jersey

NOTE- VALUES SHOWN AS ZERO WERE BELOW THE
DETECTION LIMIT AND ARE ONLY SHOWN TO
INDICATE SAMPLING WAS PERFORMED ON
THAT DATE.

POUNDS PER DAY (LBS./DAY)

KLLO03841

PLATE E-32



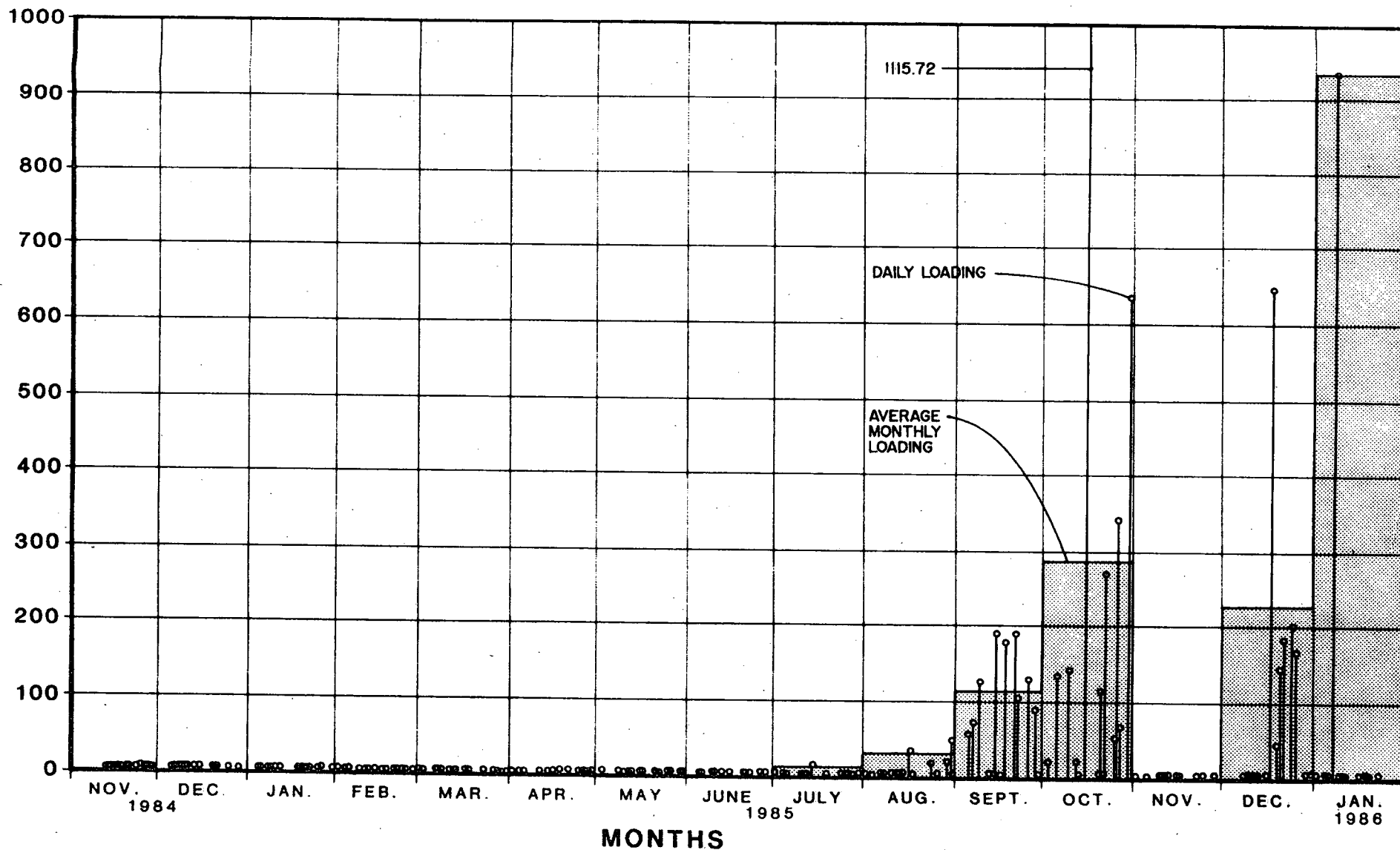
PASSAIC VALLEY SEWERAGE COMMISSIONERS
NEWARK, NEW JERSEY
ORGANIC PRIORITY POLLUTANT INVESTIGATION
NAPHTHALENE LOADING
TREATMENT PLANT INFLUENT

CFM Incorporated
Environmental Engineering Services
Whippany, New Jersey

NOTE- VALUES SHOWN AS ZERO WERE BELOW THE DETECTION LIMIT AND ARE ONLY SHOWN TO INDICATE SAMPLING WAS PERFORMED ON THAT DATE.

POUNDS PER DAY (LBS./DAY)

KLLO03842 PLATE E-33



PASSAIC VALLEY SEWERAGE COMMISSIONERS
NEWARK, NEW JERSEY
ORGANIC PRIORITY POLLUTANT INVESTIGATION
NITROBENZENE LOADING
TREATMENT PLANT INFLUENT

CFM Incorporated
Environmental Engineering Services
Whippany, New Jersey

NOTE- VALUES SHOWN AS ZERO WERE BELOW THE DETECTION LIMIT AND ARE ONLY SHOWN TO INDICATE SAMPLING WAS PERFORMED ON THAT DATE.

at least 50 percent of the time, with several compounds including Toluene, Ethylbenzene, Chloroform and Trichloroethylene present in the waste about 80 percent of the time. The average daily loading of the Volatile Organic Compounds varied between about 4 pounds per day for 1,1,2-Trichloroethane to over 745 pounds per day for Toluene. Maximum loadings identified were as high as 11,585 pounds per day for 1,3-Dichloropropylene the highest loading in terms of pounds per day experienced during the investigation. The consistent presence of these low molecular weight Volatile Organic Compounds indicates their wide use in the industrial base tributary to the Commissioners Treatment Plant. The graphical presentation of the select Volatile Organic Compounds did not indicate any long term trends other than they are normally present and that the daily loadings and monthly averages varied significantly from month to month and season to season.

The Volatile Organic Compounds were sampled by grab sampling techniques, initially during the mid morning. The time of sampling was moved to early afternoon and late afternoon to see if any appreciable variations in loading occurred as the flow rate varied to the plant. Evaluation of the analysis was not conclusive and it was decided to include a separate sampling effort as part of the investigation to determine the variation of Volatile Organic Compounds in the influent to the treatment plant over a typical 24 hour period.

KLL003843

Table "6" summaries the results of this sampling effort that occurred on July 9/10, 1985. Grab samples were obtained every two hours and analysis performed for Volatile Organic Compounds. The results of the analysis, as shown on the Table in terms of micrograms/liter suggested that the compounds do indeed vary significantly over a 24 hour period. The results of the analysis for Toluene were evaluated with the hourly flow rate recorded for those days at the plant and plotted to show the variation in loading to the plant. This evaluation is shown on Plate "F". For the day of sampling, the loading of Toluene was greatest during the normal working hours, with only minor loadings experienced during typical non-working hours. The immediate impact of the loading suggested the source to be near the plant.

The Acid Extractable Compounds were found in a lesser number of samples than the Volatile Organic Compounds with Phenol as the principal exception being present in the influent in just about 80 percent of all samples obtained. Average daily loadings of the Acid Extractable Compounds appeared to be greater than the Volatile Organic Compounds but occurring on a less frequent basis. Maximum daily loadings reflected the higher average daily loading. The long term trend of the Acid Extractable Compounds as shown on the graphical examples suggested what appears to be seasonal variations in loadings (with the exception of Phenol). Phenol loadings appear to rise and fall with selected times of the year with no defined regularity.

TABLE 6

PASSAIC VALLEY SEWERAGE COMMISSIONERS
SUMMARY OF LABORATORY ANALYSIS
ORGANIC PRIORITY POLLUTANT INVESTIGATION
TREATMENT PLANT INFLUENT
(24-HOUR - VOLATILE ORGANIC ANALYSIS)

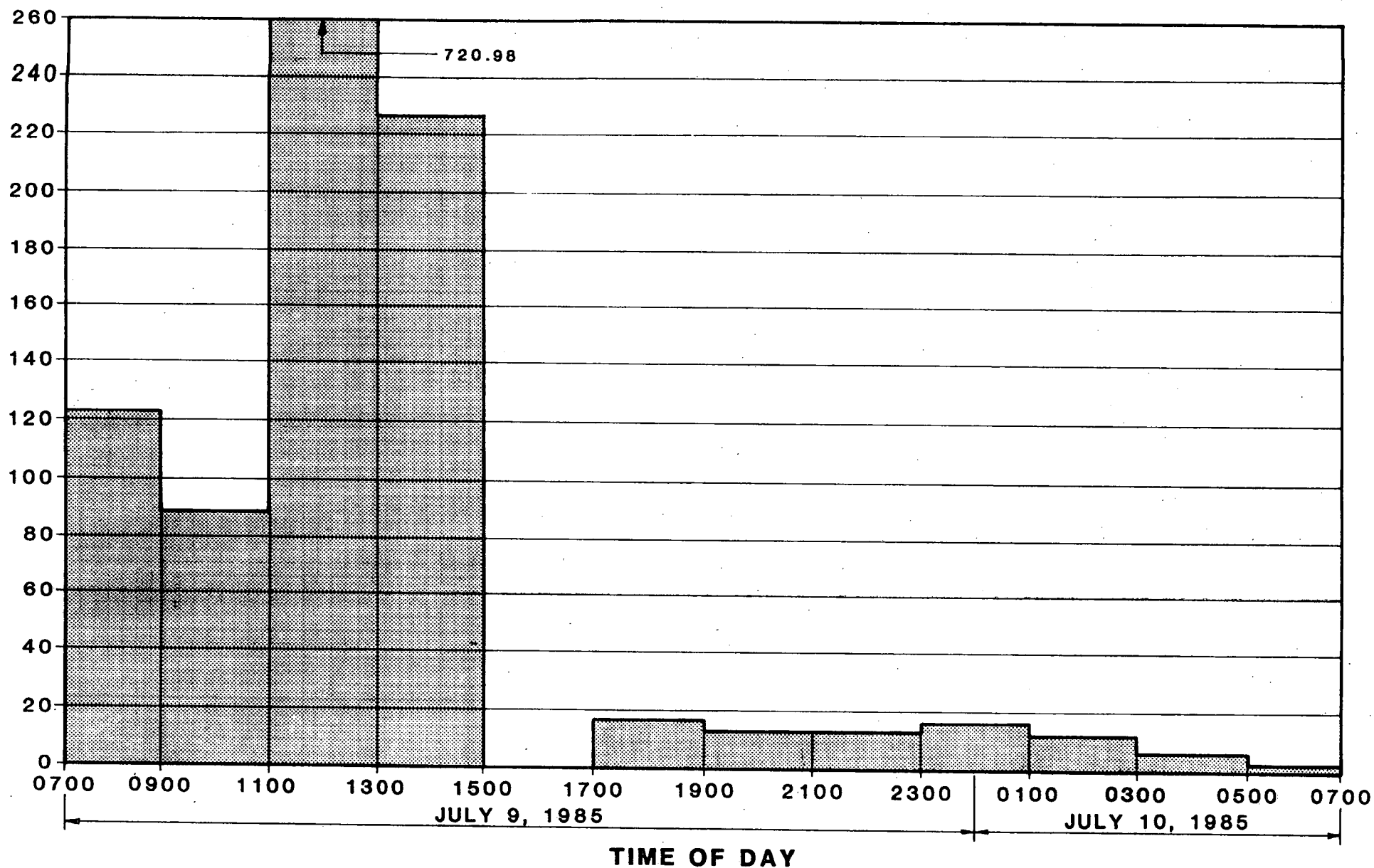
DATE	JULY 9, 1985								JULY 10, 1985			
TIME OF GRAB SAMPLING	0900	1100	1300	1500	1700	1900	2100	2300	0100	0300	0500	0700
VOLATILE ORGANICS (1)												
Acrolein	ND	ND	ND	ND	ND	8.84	ND	ND	ND	ND	ND	ND
Acrylonitrile	(1.00	ND	ND	ND	ND	21.36	2.28	(1.00	(1.00	13.64	ND	ND
Benzene	4.84	18.44	3.72	3.72	ND	2.64	5.64	6.88	2.96	2.88	2.44	ND
Bis (Chloromethyl) Ether	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	6.44	4.72	2.84	(1.00	(1.00	ND	ND	2.88	(1.00	(1.00	(1.00	(1.00
Chlorobenzene	76.00	1848.00	144.00	916.00	ND	183.60	ND	ND	ND	ND	2.24	ND
Chlorodibromomethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ND	(1.00	(1.00	(1.00	ND	ND	ND	ND	ND	ND	ND	ND
2-Chloroethylvinyl Ether	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	34.72	27.28	25.76	37.44	(1.00	4.88	6.84	46.88	54.48	35.48	34.24	7.64
Dichlorobromomethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	4.32	3.88	3.88	4.52	ND	ND	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	4.60	18.88	ND	4.76	ND	7.44	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	11.4	36.52	5.64	16.28	ND	29.16	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	(1.00	(1.00	(1.00	(1.00	(1.00	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	(1.00	(1.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	ND	(1.00	ND	ND	ND	ND	ND	(1.00	(1.00	(1.00	ND	ND
1,3-Dichloropropylene	ND	ND	ND	ND	ND	ND	ND	(1.00	(1.00	ND	ND	ND
Ethylbenzene	13.68	159.68	48.48	78.88	ND	ND	ND	ND	ND	ND	ND	ND
Methyl Bromide	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	12.76	28.32	59.28	12.16	9.68	(1.00	(1.00	(1.00	(1.00	(1.00	2.84	(1.00
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene	5.52	4.28	6.88	18.92	(1.00	7.84	18.84	13.56	11.84	12.24	12.84	14.44
Toluene	97.68	68.88	386.88	124.88	ND	9.88	7.52	8.32	9.96	8.84	5.16	2.48
1,2-Trans-Dichloroethylene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ND	(1.00	(1.00	ND	ND	(1.00	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene	4.24	3.56	4.88	6.52	(1.00	ND	3.68	3.48	4.32	3.84	6.88	ND
Trichlorofluoromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

(1) - All results in micrograms/liter (ug/l)

POUNDS PER DAY (LBS./DAY)

KLL003846

PLATE F



PASSAIC VALLEY SEWERAGE COMMISSIONERS
NEWARK, NEW JERSEY
ORGANIC PRIORITY POLLUTANT INVESTIGATION
24 HOUR TOLUENE LOADING
TREATMENT PLANT INFLUENT
CFM Incorporated
Environmental Engineering Services
Whippany, New Jersey

Base Neutral Extractable Compounds were found even less frequently in the plant influent than either of the two other fractions. Most of the compounds were identified over the 14 months of the investigation however, no compound exceeded 15 percent of the total samples obtained in the investigation. Average daily loadings (in terms of pounds per day) varied appreciably and were consistent with the loadings developed for both Volatile and Acid Extractable Compounds. Maximum daily loadings appear to be significantly lower than the Acid Extractable Compounds and the Volatile Organics.

Pesticide Compounds for which analysis was performed were found in only a small percentage of the total number of samples obtained and at generally low concentrations. Average daily loadings in terms of pounds per day were barely detectable with no appreciable maximum daily loadings identified.

In reviewing all of the data obtained in the investigation with specific emphasis on the long term data produced at the influent to the Commissioner's Treatment Plant, it did not appear that the concentration of Organic Priority Pollutants at the Commissioner's Treatment Plant could be statistically pre-determined. Additionally, statistically relevant evaluation could not be made to predict either the concentration or loading into the treatment plant and it would appear that the Organic Priority Pollutants for which analysis was performed during this investigation are randomly received at the treatment plant. No

KLLC03147

impact analysis was made of the loading of any of the organic compounds on either the treatment system employed by the Commissioner's or the fate of the compounds following the treatment. No analysis was performed on the liquid effluent from the treatment plant nor on the sludges produced or the air surrounding the plant.

The data clearly demonstrates the variability of both the quantity and quality of the various organic priority pollutants which have entered the PVSC treatment plant. A properly conducted pilot plant study could provide invaluable data on the ultimate fate of these organic pollutants, and determine how much of these pollutants can be bio-oxidized safely. Although the scope of this contract did not include this area, it certainly would appear to be a logical next step.

KLL003849